

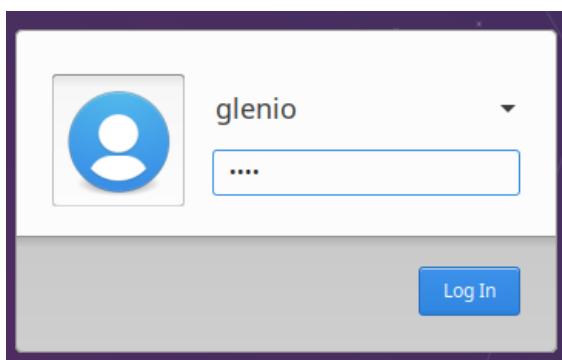
Relatório 1 de Sistemas Digitais para a Mecatrônica/Sistemas Embarcados II

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Capítulo 1 : Conceitos Básicos

1.1: Acessando o Sistema



1.3: Alterando o Nome da Máquina

gedit /etc/hostname

```
Terminal - root@glonio-VirtualBox:/home/glenio
File Edit View Terminal Tabs Help

Preparing to unpack .../99_libgimp1-4.0_4.4.0-1_amd64.deb ...
Unpacking libgimp1-4.0-amd64 (4.4.0-1) ...
Selecting previously unselected package gedit.
Preparing to unpack .../10-gedit_3.36.2-0ubuntu1_amd64.deb ...
Unpacking gedit (3.36.2-0ubuntu1) ...
Setting up gedit-common (3.36.2-0ubuntu1) ...
Setting up libpeas-common (1.26.0-2) ...
Setting up libpeas-1.0-0:amd64 (1.26.0-2) ...
Setting up liblambkit-5-common (5.0.2-1build1) ...
Setting up libgtksourceview-4-common (4.6.0-1) ...
Setting up liblambkit-5.0:amd64 (5.0.2-1build1) ...
Setting up libpeas-1.2-peaks (1.26.0-2) ...
Setting up libgtksourceview-4.0-common (4.6.0-1) ...
Setting up girl_2-qtkitsource-4.0:amd64 (4.6.0-1) ...
Setting up liblxml1-4.0:amd64 (4.4.0-1)
Processing triggers for gnome-menus (3.36.0-1ubuntu1) ...
Processing triggers for libglib2.0-0:amd64 (2.64.6-1ubuntu20.04.4) ...
Processing triggers for libc-bin (2.31-0ubuntu9.2) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for desktop-file-utils (0.24-ubuntu3) ...
Processing triggers for mime-support (3.64ubuntu1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Selecting previously unselected package gedit (3.36.2-0ubuntu1) ...
Update alternative[s]: using /usr/bin/gedit to provide /usr/bin/gnome-text-editor (gnome-text-
) in auto mode
root@glonio-VirtualBox:/home/glenio# gedit /etc/hostname
[1]
```

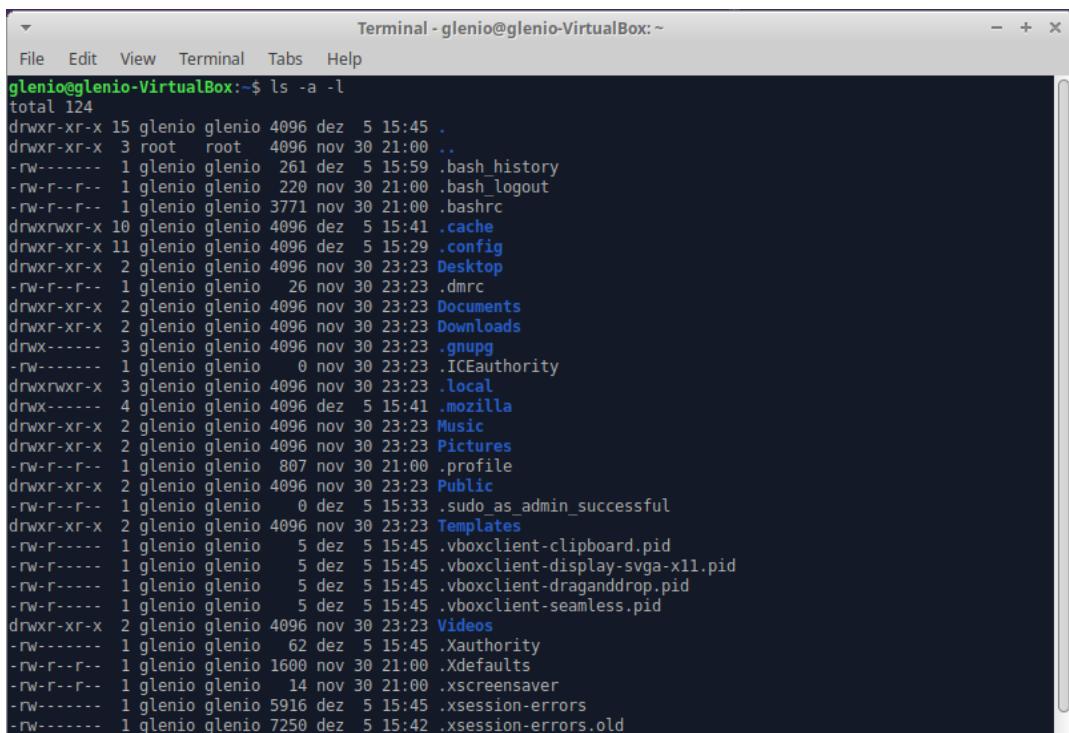
A screenshot of a terminal window titled "hostname" located in the "/etc" directory. The window has a standard OS X-style interface with a toolbar at the top featuring "Open", a dropdown menu, a "+" button, "Save", a gear icon, and window control buttons. The main area shows the contents of the file:

```
*hostname
/etc
```

The cursor is positioned at the end of the line "1 glenio-vm". At the bottom of the window, there are status indicators: "Plain Text", "Tab Width: 8", "Ln 1, Col 10", and "INS".

1.6: Opções dos Comandos

ls -a -l : listagem com detalhes de data de modificação



The screenshot shows a terminal window titled "Terminal - glenio@glenio-VirtualBox:~". The window contains the command "ls -a -l" followed by a detailed list of files and directories in the current directory. The list includes entries for .bash_history, .bash_logout, .cache, .config, Desktop, .dmrc, Documents, Downloads, .gnupg, .ICEauthority, .local, .mozilla, .Music, .Pictures, .profile, .Public, .sudo_as admin_successful, Templates, and Videos. Each entry shows the file type (e.g., drwxr-xr-x), permissions, owner (glenio), group (glenio), size (e.g., 4096), date modified (e.g., dez 5 15:45), and the file name.

```
Terminal - glenio@glenio-VirtualBox:~  
File Edit View Terminal Tabs Help  
glenio@glenio-VirtualBox:~$ ls -a -l  
total 124  
drwxr-xr-x 15 glenio glenio 4096 dez 5 15:45 .  
drwxr-xr-x  3 root  root  4096 nov 30 21:00 ..  
-rw-----  1 glenio glenio 261 dez 5 15:59 .bash_history  
-rw-r--r--  1 glenio glenio 220 nov 30 21:00 .bash_logout  
-rw-r--r--  1 glenio glenio 3771 nov 30 21:00 .bashrc  
drwxrwxr-x 10 glenio glenio 4096 dez 5 15:41 .cache  
drwxr-xr-x 11 glenio glenio 4096 dez 5 15:29 .config  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Desktop  
-rw-r--r--  1 glenio glenio 26 nov 30 23:23 .dmrc  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Documents  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Downloads  
drwxr-xr-x  3 glenio glenio 4096 nov 30 23:23 .gnupg  
-rw-----  1 glenio glenio 0 nov 30 23:23 .ICEauthority  
drwxrwxr-x  3 glenio glenio 4096 nov 30 23:23 .local  
drwxr----- 4 glenio glenio 4096 dez 5 15:41 .mozilla  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Music  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Pictures  
-rw-r--r--  1 glenio glenio 807 nov 30 21:00 .profile  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Public  
-rw-r--r--  1 glenio glenio 0 dez 5 15:33 .sudo_as admin_successful  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Templates  
-rw-r----- 1 glenio glenio 5 dez 5 15:45 .vboxclient-clipboard.pid  
-rw-r----- 1 glenio glenio 5 dez 5 15:45 .vboxclient-display-svga-x11.pid  
-rw-r----- 1 glenio glenio 5 dez 5 15:45 .vboxclient-draganddrop.pid  
-rw-r----- 1 glenio glenio 5 dez 5 15:45 .vboxclient-seamless.pid  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Videos  
-rw-----  1 glenio glenio 62 dez 5 15:45 .Xauthority  
-rw-r--r--  1 glenio glenio 1600 nov 30 21:00 .Xdefaults  
-rw-r--r--  1 glenio glenio 14 nov 30 21:00 .xscreensaver  
-rw-----  1 glenio glenio 5916 dez 5 15:45 .xsession-errors  
-rw-----  1 glenio glenio 7250 dez 5 15:42 .xsession-errors.old
```

ls --all: Listagem de todos os arquivos, mesmo os de sistema

```
Terminal - glenio@glenio-VirtualBox: ~
File Edit View Terminal Tabs Help
glenio@glenio-VirtualBox:~$ ls --all
. Desktop .mozilla .vboxclient-clipboard.pid .xscreensaver
.. .dmrc Music .vboxclient-display-svga-x11.pid .xsession-errors
.bash_history Documents Pictures .vboxclient-draganddrop.pid .xsession-errors.old
.bash_logout Downloads .profile .vboxclient-seamless.pid
.bashrc .gnupg Public Videos
.cache .ICEAuthority .sudo_as_admin_successful .Xauthority
.config .local Templates .Xdefaults
```

The terminal window shows the command 'ls --all' being run in a user session. The output lists various files and directories in the current directory, including hidden files like '.bash_history' and '.config'. It also shows temporary files from a running VirtualBox session.

--help: Exibe as informações sobre um determinado comando

```
Terminal - root@glenio-VirtualBox: ~
File Edit View Terminal Tabs Help
root@glenio-VirtualBox:~# cd --help
cd: cd [-L][-P [-e]] [-@] [dir]
      Change the shell working directory.

      Change the current directory to DIR.  The default DIR is the value of the
      HOME shell variable.

      The variable CDPATH defines the search path for the directory containing
      DIR.  Alternative directory names in CDPATH are separated by a colon (:).
      A null directory name is the same as the current directory.  If DIR begins
      with a slash (/), then CDPATH is not used.

      If the directory is not found, and the shell option 'cable_vars' is set,
      the word is assumed to be a variable name.  If that variable has a value,
      its value is used for DIR.

      Options:
        -L      force symbolic links to be followed: resolve symbolic
               links in DIR after processing instances of `..'
        -P      use the physical directory structure without following
               symbolic links: resolve symbolic links in DIR before
               processing instances of `..'
        -e      if the -P option is supplied, and the current working
               directory cannot be determined successfully, exit with
               a non-zero status
        -@      on systems that support it, present a file with extended
               attributes as a directory containing the file attributes

      The default is to follow symbolic links, as if '-L' were specified.
      `..' is processed by removing the immediately previous pathname component
      back to a slash or the beginning of DIR.

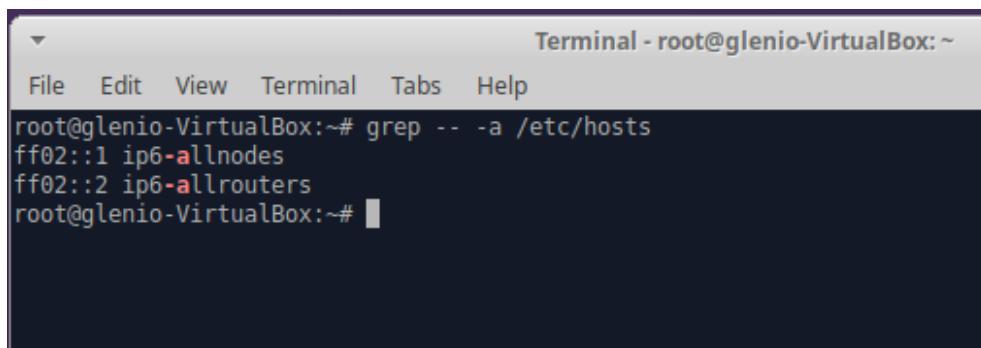
      Exit Status:
```

The terminal window shows the 'cd --help' command being run by a root user. The output provides detailed information about the 'cd' command, including its purpose, options (-L, -P, -e, -@), and how it handles symbolic links and directory traversal.

1.7: Opções Múltiplas:

Procura trechos nos arquivos de uma pasta

`grep -- -a /etc/hosts` : Procura o trecho “-a” no diretório /etc/hosts

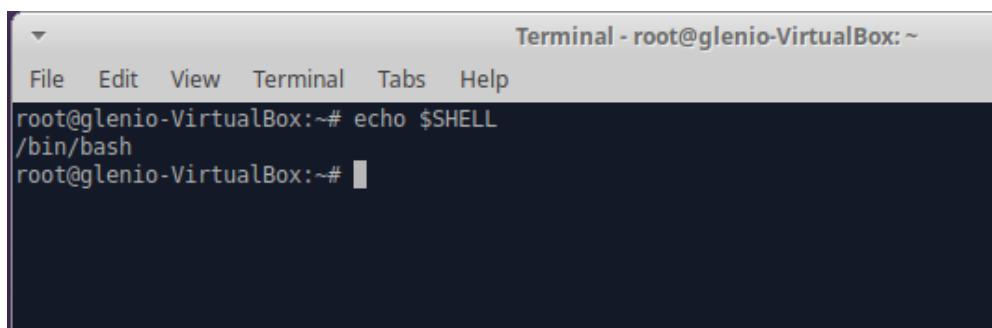


A screenshot of a terminal window titled "Terminal - root@glenio-VirtualBox: ~". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main area shows the command `grep -- -a /etc/hosts` being run, which outputs two lines: `ff02::1 ip6-allnodes` and `ff02::2 ip6-allrouters`. The prompt `root@glenio-VirtualBox:~#` is visible at the bottom.

```
Terminal - root@glenio-VirtualBox: ~
File Edit View Terminal Tabs Help
root@glenio-VirtualBox:~# grep -- -a /etc/hosts
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
root@glenio-VirtualBox:~#
```

1.8: Shell Utilizado

Descobrir qual o SHELL utilizado



A screenshot of a terminal window titled "Terminal - root@glenio-VirtualBox: ~". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main area shows the command `echo $SHELL` being run, which outputs `/bin/bash`. The prompt `root@glenio-VirtualBox:~#` is visible at the bottom.

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

1.9: Shells Instalados

Descobrir quais os interpretadores de comandos estão instalados no sistema

```
Terminal - root@glenio-VirtualBox:~  
File Edit View Terminal Tabs Help  
root@glenio-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  
root@glenio-VirtualBox:~#
```

1.12: Exibindo Mensagens no Terminal

```
Terminal - root@glenio-VirtualBox:~  
File Edit View Terminal Tabs Help  
root@glenio-VirtualBox:~# echo -e 'teste'  
teste  
root@glenio-VirtualBox:~# echo 'teste'  
teste  
root@glenio-VirtualBox:~#
```

1.14: Comando history:

lista o histórico de comandos utilizados no terminal

```
Terminal - root@glenio-VirtualBox:~  
File Edit View Terminal Tabs Help  
root@glenio-VirtualBox:~# history  
1 ls  
2 cd  
3 ls  
4 cd etc  
5 sudo etc  
6 ls  
7 vi /etc/hostname  
8 cd  
9 cd /etc/  
10 ls  
11 cd hostname  
12 cd /hostnqme/  
13 cd /hostname/  
14 cd hostname  
15 cd /hostname/  
16 cd hostname/
```

1.15: Executar um determinado comando do history

!42: Executando o comando 42 da lista

```
48 echo teste  
49 history  
root@glenio-VirtualBox:~# !42  
echo teste  
teste  
root@glenio-VirtualBox:~#
```

1.16: Exemplo de busca no history

History | grep cd: localiza o/os comando que possuem cd

```
root@glenio-VirtualBox:~# history | grep cd  
2 cd  
4 cd etc  
8 cd  
9 cd /etc/  
11 cd hostname  
12 cd /hostnqme/  
13 cd /hostname/  
14 cd hostname  
15 cd /hostname  
16 cd hostname/  
17 cd  
18 cd /etc/hostname  
24 cd  
26 cd --help  
51 history | grep cd  
root@glenio-VirtualBox:~#
```

1.17: Limpar o histórico

history -c: Limpa a lista de comandos

```
root@glenio-VirtualBox:~# history -c  
root@glenio-VirtualBox:~# history  
1 history  
root@glenio-VirtualBox:~#
```

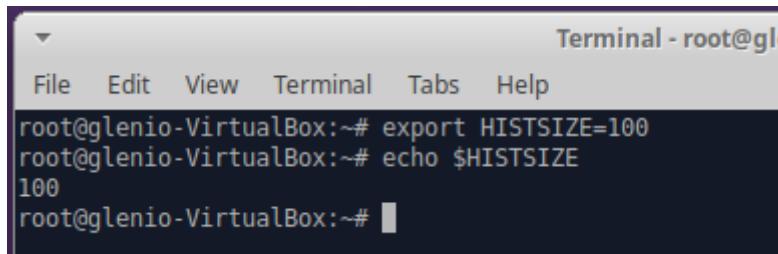
1.18: Tamanho do histórico

echo \$HISTSIZE : Descobrir o tamanho máximo do histórico

```
Terminal - root@  
File Edit View Terminal Tabs Help  
root@glenio-VirtualBox:~# echo $HISTSIZE  
1000  
root@glenio-VirtualBox:~#
```

1.19 e 1.20: modifica o tamanho do histórico

`export HISTSIZE= « ValorDesejado »`

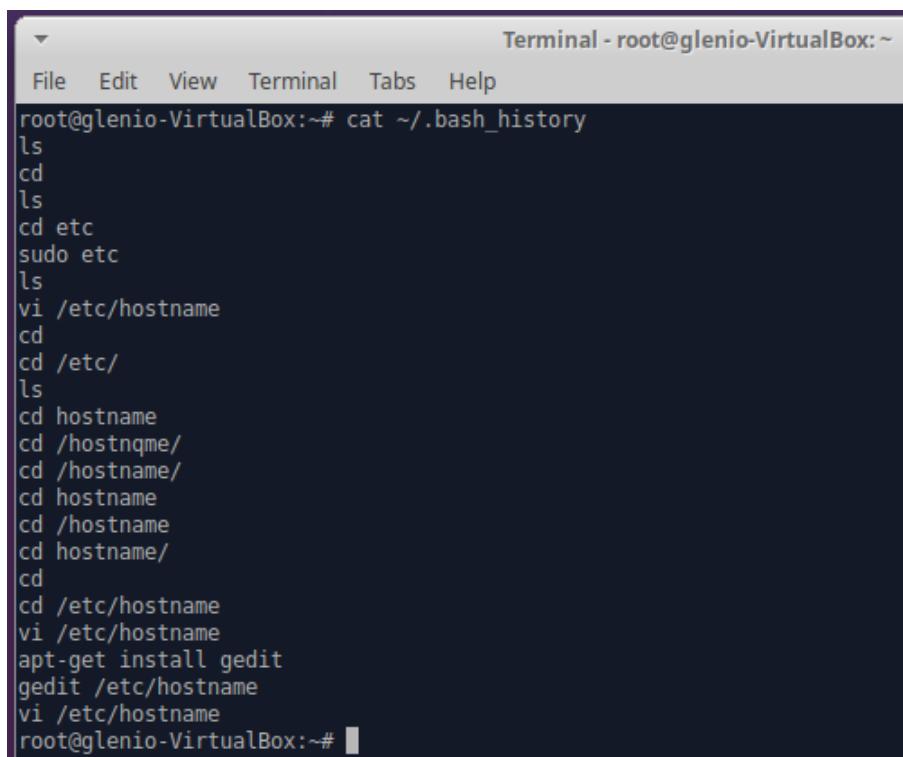


A screenshot of a terminal window titled "Terminal - root@glenio-VirtualBox". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main area shows the command "root@glenio-VirtualBox:~# export HISTSIZE=100" followed by "root@glenio-VirtualBox:~# echo \$HISTSIZE" and the output "100".

```
Terminal - root@glenio-VirtualBox
File Edit View Terminal Tabs Help
root@glenio-VirtualBox:~# export HISTSIZE=100
root@glenio-VirtualBox:~# echo $HISTSIZE
100
root@glenio-VirtualBox:~#
```

1.21: Arquivo contendo o histórico de comandos

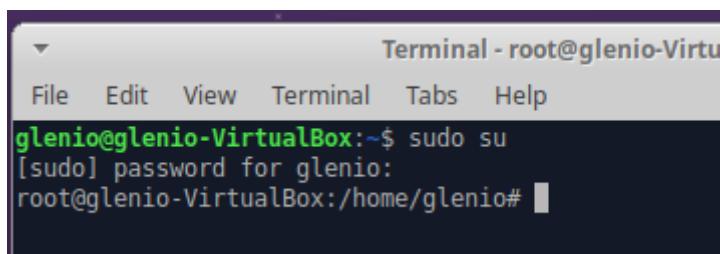
`cat ~/.bash_history`



A screenshot of a terminal window titled "Terminal - root@glenio-VirtualBox:~". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main area shows the command "root@glenio-VirtualBox:~# cat ~/.bash_history" followed by a list of commands including "ls", "cd", "vi /etc/hostname", "apt-get install gedit", and "root@glenio-VirtualBox:~#".

```
Terminal - root@glenio-VirtualBox:~
File Edit View Terminal Tabs Help
root@glenio-VirtualBox:~# cat ~/.bash_history
ls
cd
ls
cd etc
sudo etc
ls
vi /etc/hostname
cd
cd /etc/
ls
cd hostname
cd /hostnqme/
cd /hostname/
cd hostname
cd /hostname
cd hostname/
cd
cd /etc/hostname
vi /etc/hostname
apt-get install gedit
gedit /etc/hostname
vi /etc/hostname
root@glenio-VirtualBox:~#
```

1.23 - Acessando o usuário root :



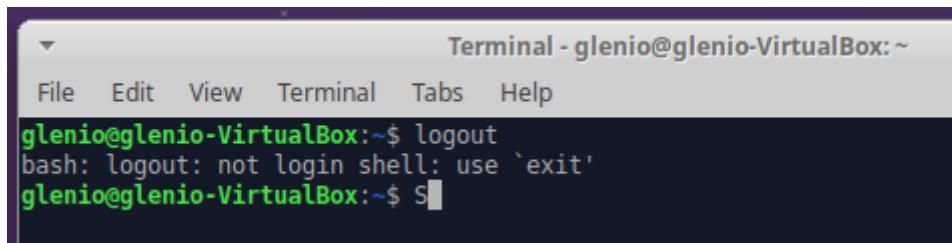
A screenshot of a terminal window titled "Terminal - root@glenio-VirtualBox". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main area shows the command "glenio@glenio-VirtualBox:~\$ sudo su" followed by "[sudo] password for glenio:" and the output "root@glenio-VirtualBox:/home/glenio#".

```
Terminal - root@glenio-VirtualBox
File Edit View Terminal Tabs Help
glenio@glenio-VirtualBox:~$ sudo su
[sudo] password for glenio:
root@glenio-VirtualBox:/home/glenio#
```

Capítulo 2 :

2.1. Comando Logout : Ligando e Desligando o Linux

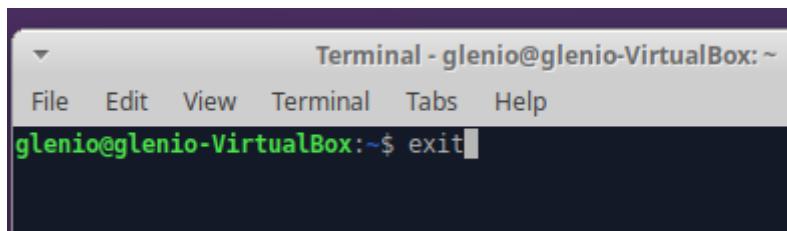
Utilizado para fechar a conta



A screenshot of a terminal window titled "Terminal - glenio@glenio-VirtualBox: ~". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". Below the menu is a command line interface. The user has typed "glenio@glenio-VirtualBox:~\$ logout" and received the response "bash: logout: not login shell: use 'exit'". The prompt then changes to "glenio@glenio-VirtualBox:~\$ S" where the "S" is partially typed.

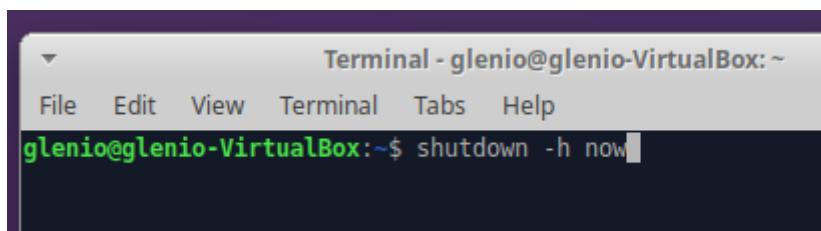
2.2. Comando exit :

Sair do terminal



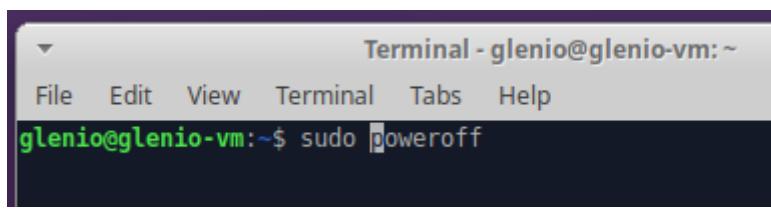
A screenshot of a terminal window titled "Terminal - glenio@glenio-VirtualBox: ~". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". Below the menu is a command line interface. The user has typed "glenio@glenio-VirtualBox:~\$ exit" and is awaiting a response.

2.3. Desligando Imediatamente com shutdown



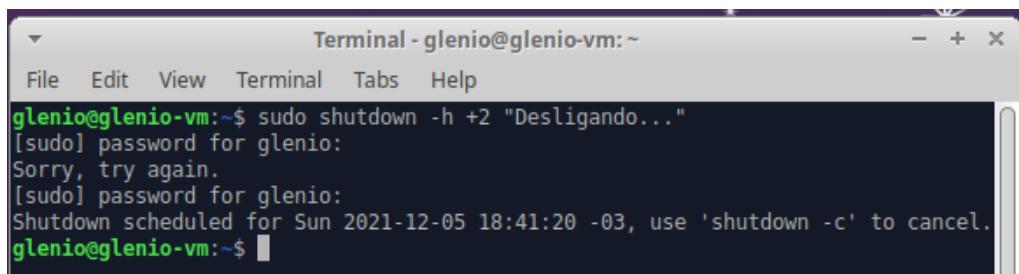
A screenshot of a terminal window titled "Terminal - glenio@glenio-VirtualBox: ~". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". Below the menu is a command line interface. The user has typed "glenio@glenio-VirtualBox:~\$ shutdown -h now" and is awaiting a response.

2.4. Desligando Imediatamente com poweroff



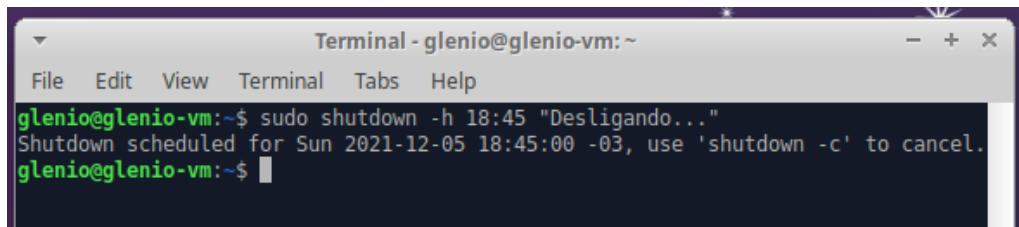
A screenshot of a terminal window titled "Terminal - glenio@glenio-vm: ~". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". Below the menu is a command line interface. The user has typed "glenio@glenio-vm:~\$ sudo poweroff" and is awaiting a response.

2.5: Desligando Após Determinado Intervalo de Tempo



A screenshot of a terminal window titled "Terminal - glenio@glenio-vm:~". The window has a standard title bar with icons for minimize, maximize, and close. The menu bar includes "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main terminal area shows the command: `sudo shutdown -h +2 "Desligando..."`. It prompts for a password with "[sudo] password for glenio:" and displays the message "Sorry, try again." followed by another password prompt. Finally, it shows "Shutdown scheduled for Sun 2021-12-05 18:41:20 -03, use 'shutdown -c' to cancel." The prompt ends with `glenio@glenio-vm:~$`.

2.7: Desligando Imediatamente

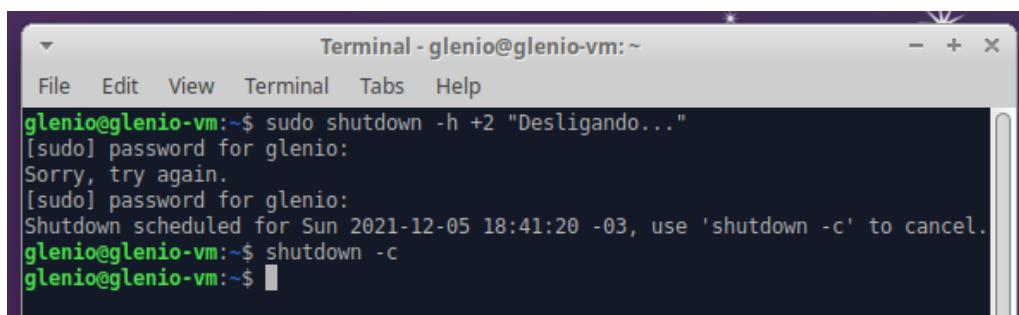


A screenshot of a terminal window titled "Terminal - glenio@glenio-vm:~". The window has a standard title bar with icons for minimize, maximize, and close. The menu bar includes "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main terminal area shows the command: `sudo shutdown -h 18:45 "Desligando..."`. It displays the message "Shutdown scheduled for Sun 2021-12-05 18:45:00 -03, use 'shutdown -c' to cancel." The prompt ends with `glenio@glenio-vm:~$`.

2.8: Desligando em 5 minutos

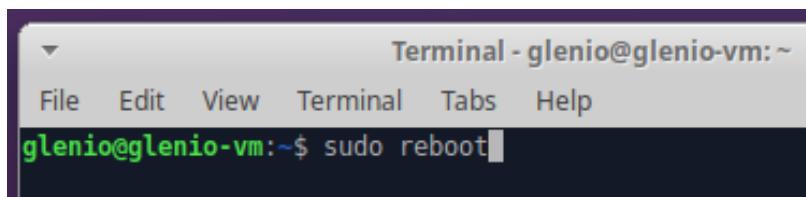
Mesmo que para 2.5

2.9: Cancelando Shutdown



A screenshot of a terminal window titled "Terminal - glenio@glenio-vm:~". The window has a standard title bar with icons for minimize, maximize, and close. The menu bar includes "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main terminal area shows the command: `sudo shutdown -h +2 "Desligando..."`. It prompts for a password with "[sudo] password for glenio:" and displays the message "Sorry, try again." followed by another password prompt. Finally, it shows "Shutdown scheduled for Sun 2021-12-05 18:41:20 -03, use 'shutdown -c' to cancel." The prompt ends with `glenio@glenio-vm:~$ shutdown -c` and `glenio@glenio-vm:~$`.

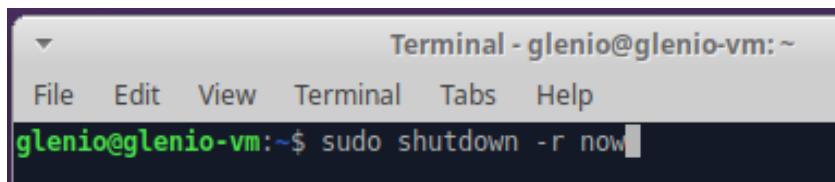
2.10: Reinicializando com reboot



A screenshot of a terminal window titled "Terminal - glenio@glenio-vm:~". The window has a standard title bar with icons for minimize, maximize, and close. The menu bar includes "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main terminal area shows the command: `sudo reboot`.

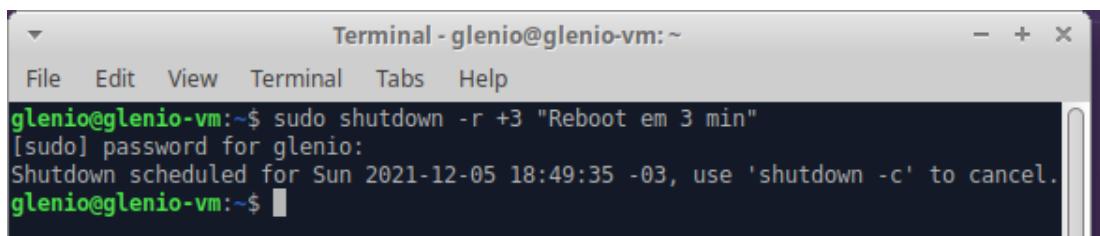
2.11: Reinicializando com shutdown

Funciona igual ao 2.10



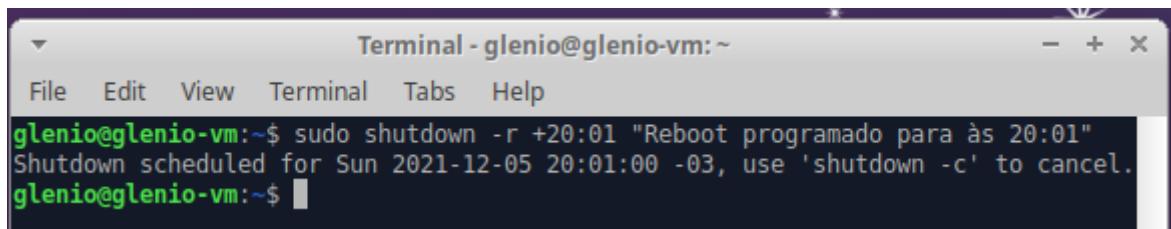
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ sudo shutdown -r now
```

2.12: Reinicializando a Máquina após Determinado Intervalo de tempo



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ sudo shutdown -r +3 "Reboot em 3 min"  
[sudo] password for glenio:  
Shutdown scheduled for Sun 2021-12-05 18:49:35 -03, use 'shutdown -c' to cancel.  
glenio@glenio-vm:~$
```

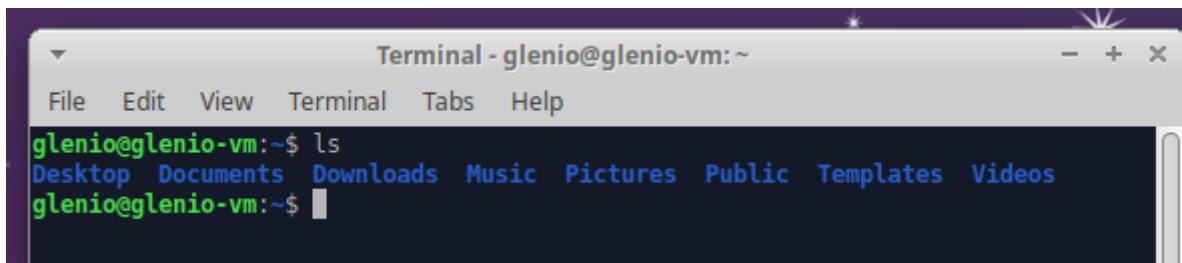
2.13: Reinicializando a Máquina em Horário Específico



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ sudo shutdown -r +20:01 "Reboot programado para às 20:01"  
Shutdown scheduled for Sun 2021-12-05 20:01:00 -03, use 'shutdown -c' to cancel.  
glenio@glenio-vm:~$
```

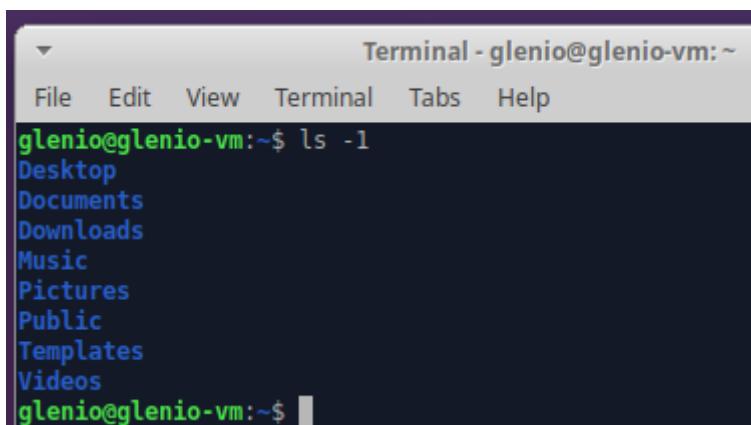
Capítulo 3 : Operações em Diretórios e Arquivos

3.1: Listando o Conteúdo de um Diretório



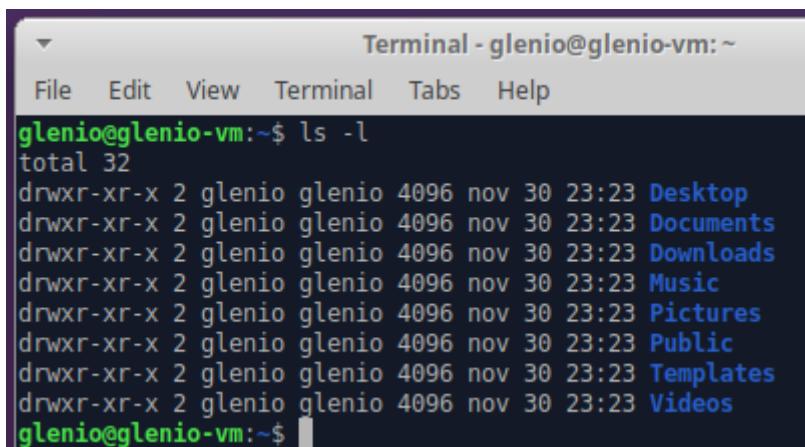
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ls  
Desktop Documents Downloads Music Pictures Public Templates Videos  
glenio@glenio-vm:~$
```

3.2: Uma Entrada por Linha



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

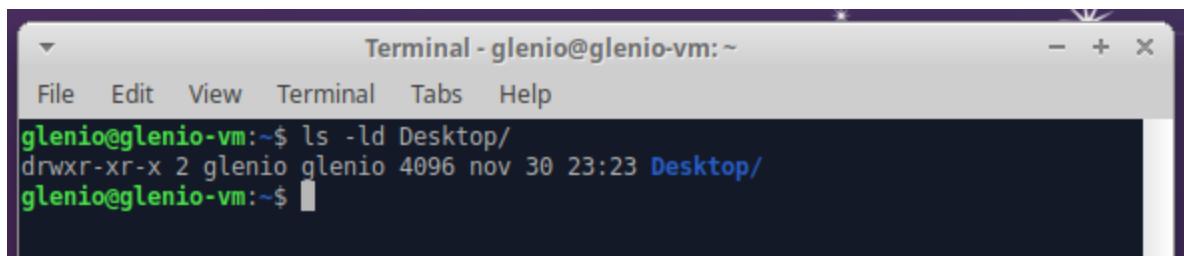
3.3: Comando ls no formato longo



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ls -l  
total 32  
drwxr-xr-x 2 glenio glenio 4096 nov 30 23:23 Desktop  
drwxr-xr-x 2 glenio glenio 4096 nov 30 23:23 Documents  
drwxr-xr-x 2 glenio glenio 4096 nov 30 23:23 Downloads  
drwxr-xr-x 2 glenio glenio 4096 nov 30 23:23 Music  
drwxr-xr-x 2 glenio glenio 4096 nov 30 23:23 Pictures  
drwxr-xr-x 2 glenio glenio 4096 nov 30 23:23 Public  
drwxr-xr-x 2 glenio glenio 4096 nov 30 23:23 Templates  
drwxr-xr-x 2 glenio glenio 4096 nov 30 23:23 Videos  
glenio@glenio-vm:~$
```

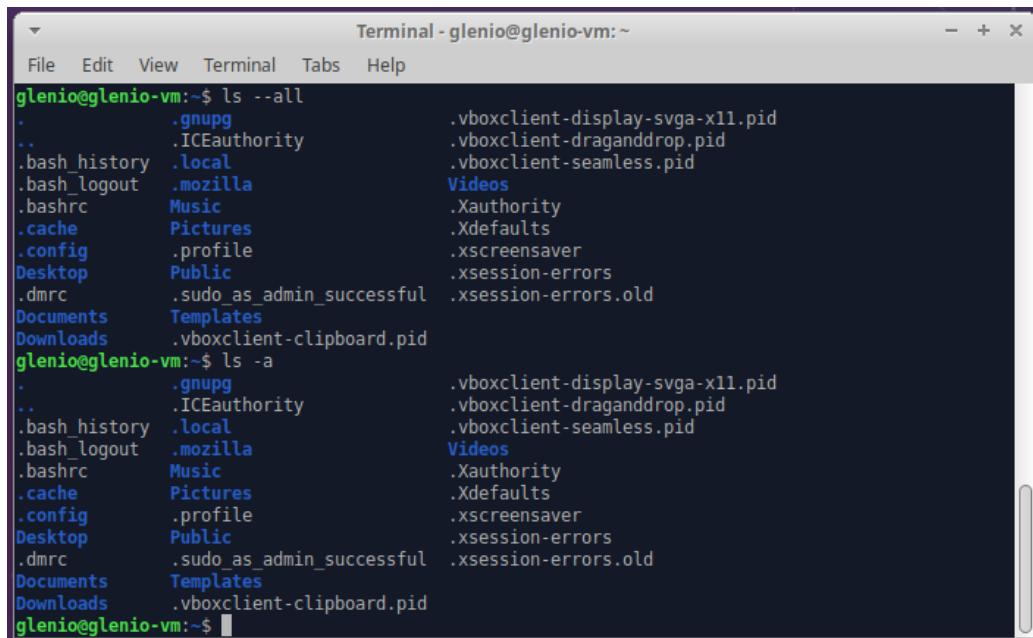
Todos possuem *d* como prefixo, significando que todos são diretórios

3.7: Obtendo informações sobre diretórios



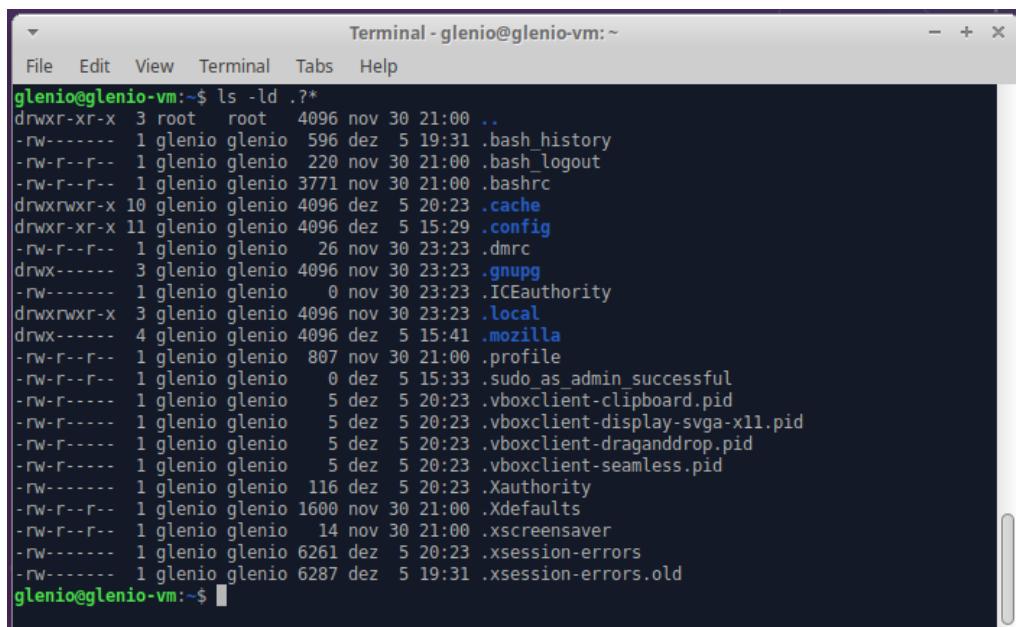
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ls -ld Desktop/  
drwxr-xr-x 2 glenio glenio 4096 nov 30 23:23 Desktop/  
glenio@glenio-vm:~$
```

3.8: Listando Todos os Arquivos Inclusive os Ocultos



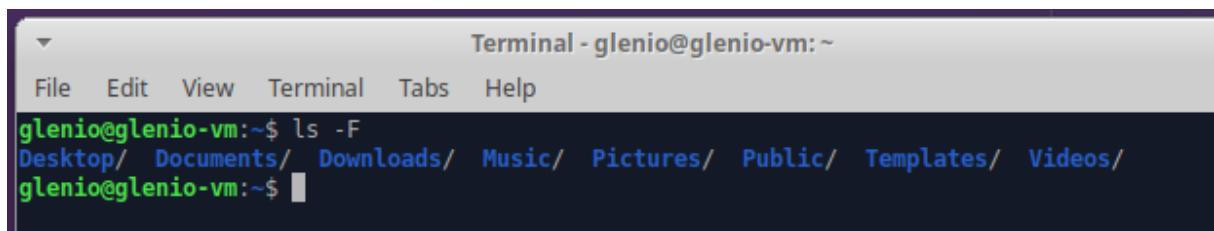
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ls -a  
.  
..  
.bash_history .local .vboxclient-display-svga-x11.pid  
.bash_logout .mozilla .vboxclient-draganddrop.pid  
.bashrc Music .vboxclient-seamless.pid  
.cache Pictures .Xauthority  
.config .profile .Xdefaults  
Desktop Public .xscreensaver  
.dmrc .sudo_as_admin_successful .xsession-errors  
Documents Templates .xsession-errors.old  
Downloads .vboxclient-clipboard.pid  
glenio@glenio-vm:~$ ls -all  
.  
..  
.bash_history .local .vboxclient-display-svga-x11.pid  
.bash_logout .mozilla .vboxclient-draganddrop.pid  
.bashrc Music .vboxclient-seamless.pid  
.cache Pictures .Xauthority  
.config .profile .Xdefaults  
Desktop Public .xscreensaver  
.dmrc .sudo_as_admin_successful .xsession-errors  
Documents Templates .xsession-errors.old  
Downloads .vboxclient-clipboard.pid  
glenio@glenio-vm:~$
```

3.9: Listando Apenas os Arquivos Ocultos



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ls -ld .?*  
drwxr-xr-x 3 root root 4096 nov 30 21:00 ..  
-rw----- 1 glenio glenio 596 dez 5 19:31 .bash_history  
-rw-r--r-- 1 glenio glenio 220 nov 30 21:00 .bash_logout  
-rw-r--r-- 1 glenio glenio 3771 nov 30 21:00 .bashrc  
drwxrwxr-x 10 glenio glenio 4096 dez 5 20:23 .cache  
drwxr-xr-x 11 glenio glenio 4096 dez 5 15:29 .config  
-rw-r--r-- 1 glenio glenio 26 nov 30 23:23 .dmrc  
drwx----- 3 glenio glenio 4096 nov 30 23:23 .gnupg  
-rw----- 1 glenio glenio 0 nov 30 23:23 .ICEAuthority  
drwxrwxr-x 3 glenio glenio 4096 nov 30 23:23 .local  
drwx----- 4 glenio glenio 4096 dez 5 15:41 .mozilla  
-rw-r--r-- 1 glenio glenio 807 nov 30 21:00 .profile  
-rw-r--r-- 1 glenio glenio 0 dez 5 15:33 .sudo_as_admin_successful  
-rw-r----- 1 glenio glenio 5 dez 5 20:23 .vboxclient-clipboard.pid  
-rw-r----- 1 glenio glenio 5 dez 5 20:23 .vboxclient-display-svga-x11.pid  
-rw-r----- 1 glenio glenio 5 dez 5 20:23 .vboxclient-draganddrop.pid  
-rw-r----- 1 glenio glenio 5 dez 5 20:23 .vboxclient-seamless.pid  
-rw----- 1 glenio glenio 116 dez 5 20:23 .Xauthority  
-rw-r--r-- 1 glenio glenio 1600 nov 30 21:00 .Xdefaults  
-rw-r--r-- 1 glenio glenio 14 nov 30 21:00 .xscreensaver  
-rw----- 1 glenio glenio 6261 dez 5 20:23 .xsession-errors  
-rw----- 1 glenio glenio 6287 dez 5 19:31 .xsession-errors.old  
glenio@glenio-vm:~$
```

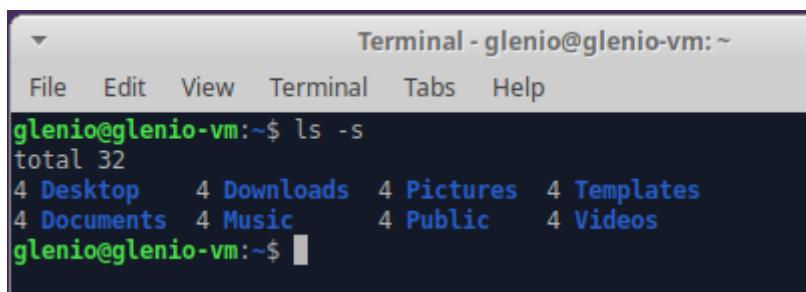
3.10: Classificando Arquivos e Diretórios



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

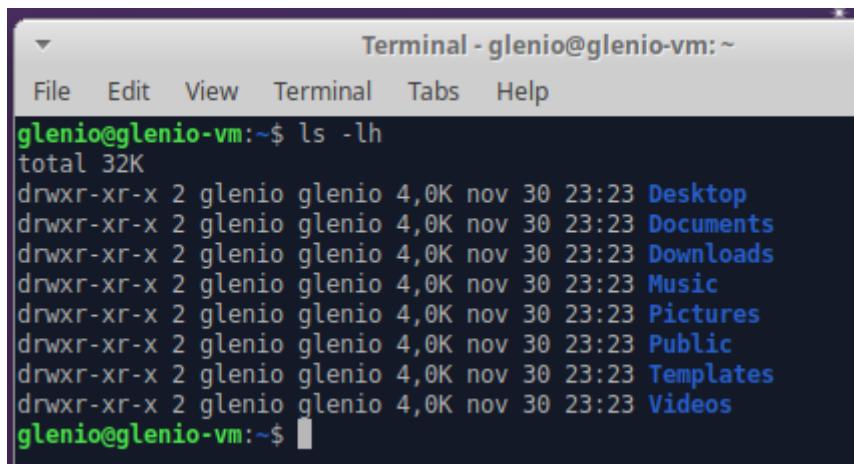
Todos terminam com /, logo todos são diretórios

3.11: Tamanho em Blocos



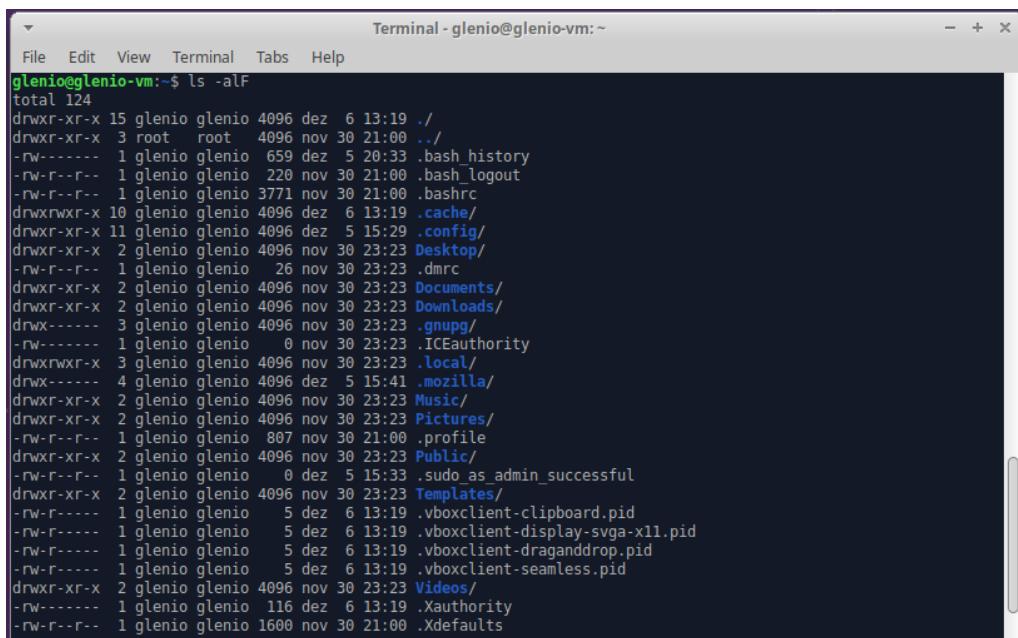
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ls -s  
total 32  
4 Desktop 4 Downloads 4 Pictures 4 Templates  
4 Documents 4 Music 4 Public 4 Videos  
glenio@glenio-vm:~$
```

3.12: Tamanho dos Arquivos



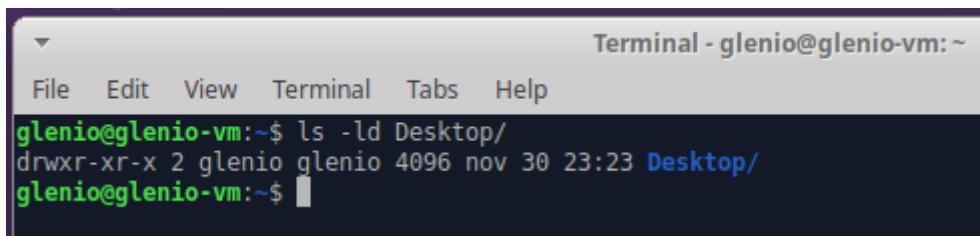
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ls -lh  
total 32K  
drwxr-xr-x 2 glenio glenio 4,0K nov 30 23:23 Desktop  
drwxr-xr-x 2 glenio glenio 4,0K nov 30 23:23 Documents  
drwxr-xr-x 2 glenio glenio 4,0K nov 30 23:23 Downloads  
drwxr-xr-x 2 glenio glenio 4,0K nov 30 23:23 Music  
drwxr-xr-x 2 glenio glenio 4,0K nov 30 23:23 Pictures  
drwxr-xr-x 2 glenio glenio 4,0K nov 30 23:23 Public  
drwxr-xr-x 2 glenio glenio 4,0K nov 30 23:23 Templates  
drwxr-xr-x 2 glenio glenio 4,0K nov 30 23:23 Videos  
glenio@glenio-vm:~$
```

3.13: Combinando Opções do Comando ls



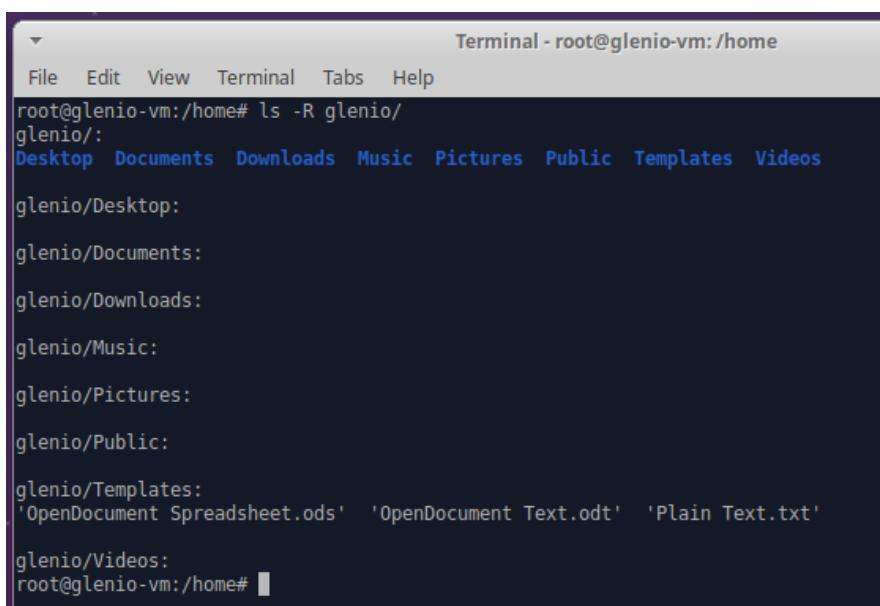
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ls -alF  
total 124  
drwxr-xr-x 15 glenio glenio 4096 dez 6 13:19 ./  
drwxr-xr-x  3 root  root  4096 nov 30 21:00 ../  
-rw-----  1 glenio glenio  659 dez 5 20:33 .bash_history  
-rw-r--r--  1 glenio glenio 220 nov 30 21:00 .bash_logout  
-rw-r--r--  1 glenio glenio 3771 nov 30 21:00 .bashrc  
drwxrwxr-x 10 glenio glenio 4096 dez 6 13:19 .cache/  
drwxr-xr-x 11 glenio glenio 4096 dez 5 15:29 .config/  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Desktop/  
-rw-r--r--  1 glenio glenio  26 nov 30 23:23 .dmrc  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Documents/  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Downloads/  
drwxr-xr-x  3 glenio glenio 4096 nov 30 23:23 .gnupg/  
-rw-----  1 glenio glenio  0 nov 30 23:23 .ICEAuthority  
drwxrwxr-x  3 glenio glenio 4096 nov 30 23:23 .local/  
drwx----- 4 glenio glenio 4096 dez 5 15:41 .mozilla/  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Music/  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Pictures/  
-rw-r--r--  1 glenio glenio 887 nov 30 21:00 .profile  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Public/  
-rw-r--r--  1 glenio glenio  0 dez 5 15:33 .sudo_as_admin_successful  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Templates/  
-rw-r----- 1 glenio glenio  5 dez 6 13:19 .vboxclient-clipboard.pid  
-rw-r----- 1 glenio glenio  5 dez 6 13:19 .vboxclient-display-svga-x11.pid  
-rw-r----- 1 glenio glenio  5 dez 6 13:19 .vboxclient-draganddrop.pid  
-rw-r----- 1 glenio glenio  5 dez 6 13:19 .vboxclient-seamless.pid  
drwxr-xr-x  2 glenio glenio 4096 nov 30 23:23 Videos/  
-rw-----  1 glenio glenio 116 dez 6 13:19 .Xauthority  
-rw-r--r--  1 glenio glenio 1600 nov 30 21:00 .Xdefaults
```

3.14: Visualizando Informações sobre o Diretório



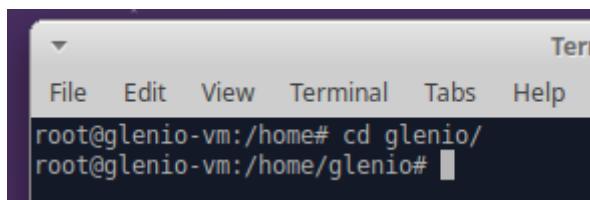
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ls -ld Desktop/  
drwxr-xr-x 2 glenio glenio 4096 nov 30 23:23 Desktop/  
glenio@glenio-vm:~$
```

3.15: Listando Recursivamente



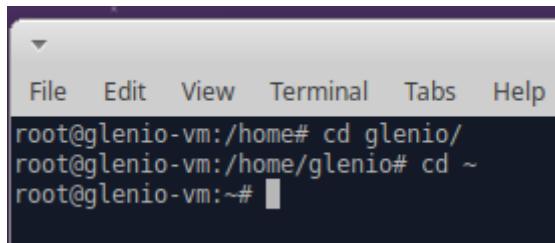
```
Terminal - root@glenio-vm: /home  
File Edit View Terminal Tabs Help  
root@glenio-vm:/home# ls -R glenio/  
glenio:/  
Desktop Documents Downloads Music Pictures Public Templates Videos  
glenio/Desktop:  
glenio/Documents:  
glenio/Downloads:  
glenio/Music:  
glenio/Pictures:  
glenio/Public:  
glenio/Templates:  
'OpenDocument Spreadsheet.ods' 'OpenDocument Text.odt' 'Plain Text.txt'  
glenio/Videos:  
root@glenio-vm:/home#
```

3.16: Comando cd



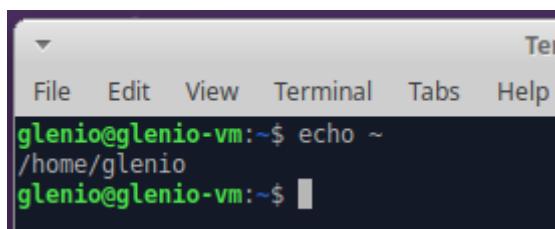
```
Terminal - glenio@glenio-vm:~$ cd glenio/
root@glenio-vm:/home/glenio#
```

3.17: Atalho para o Diretório Raiz do Usuário



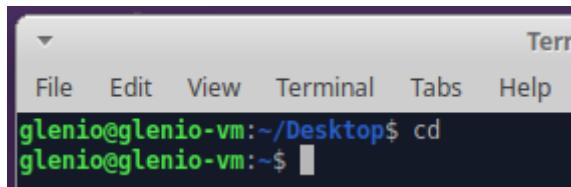
```
Terminal - root@glenio-vm:~$ cd glenio/
root@glenio-vm:/home/glenio# cd ~
root@glenio-vm:~#
```

3.18: Significado de ~



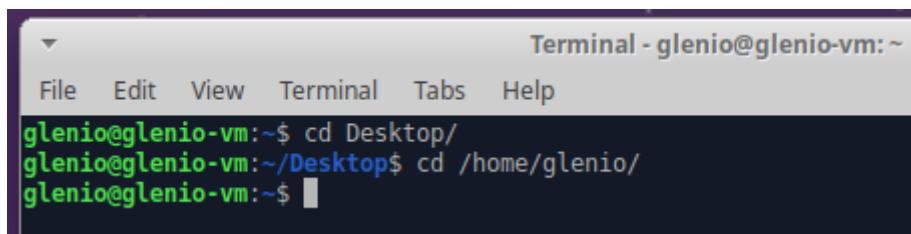
```
Terminal - glenio@glenio-vm:~$ echo ~
/home/glenio
glenio@glenio-vm:~$
```

3.19: Comando cd sem opções



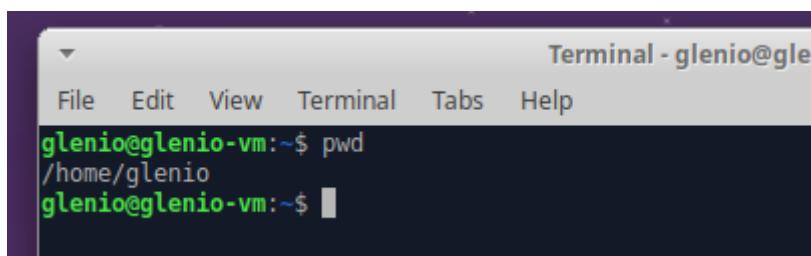
```
Terminal - glenio@glenio-vm:~/Desktop$ cd
glenio@glenio-vm:~$
```

3.20: Retornando ao Diretório do Usuário



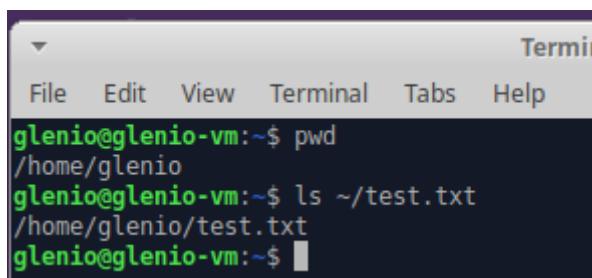
```
Terminal - glenio@glenio-vm:~$ cd Desktop/
glenio@glenio-vm:~/Desktop$ cd /home/glenio/
glenio@glenio-vm:~$
```

3.21: Comando pwd



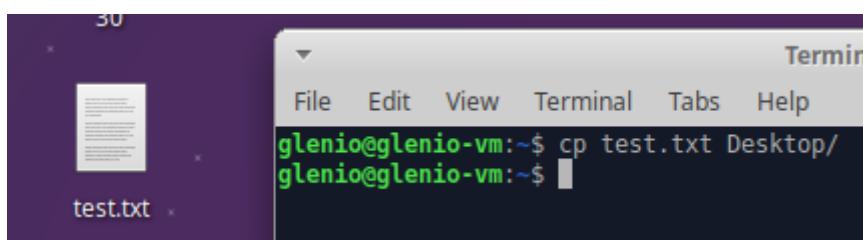
```
Terminal - glenio@glenio-vm:~$ pwd
/home/glenio
glenio@glenio-vm:~$
```

3.22: Outro Exemplo do Comando pwd



```
Terminal - glenio@glenio-vm:~$ pwd
/home/glenio
glenio@glenio-vm:~$ ls ~/test.txt
/home/glenio/test.txt
glenio@glenio-vm:~$
```

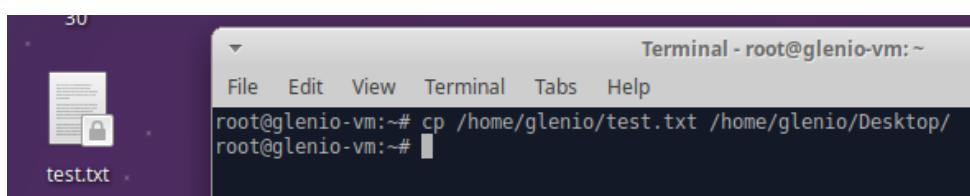
3.24: Copiando Arquivo para Diretório



A file named "test.txt" is shown in the background.

```
Terminal - glenio@glenio-vm:~$ cp test.txt Desktop/
glenio@glenio-vm:~$
```

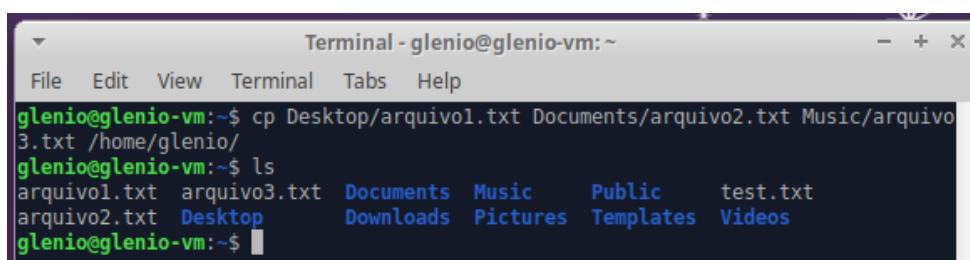
3.25: Copiando Arquivo para um Diretório



A file named "test.txt" is shown in the background.

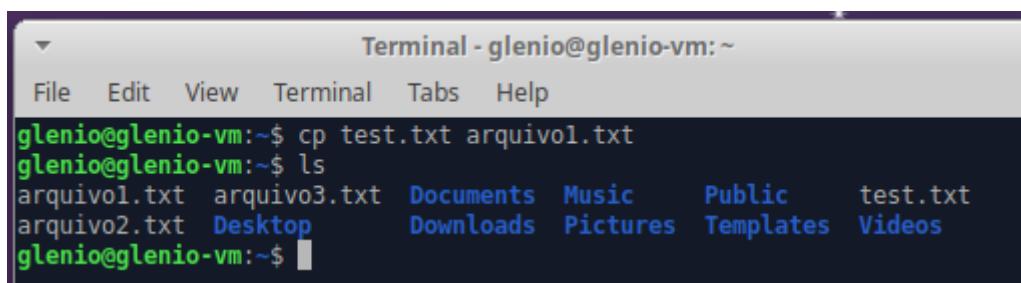
```
Terminal - root@glenio-vm:~
root@glenio-vm:~# cp /home/glenio/test.txt /home/glenio/Desktop/
root@glenio-vm:~#
```

3.26: Copiando Múltiplos Arquivos



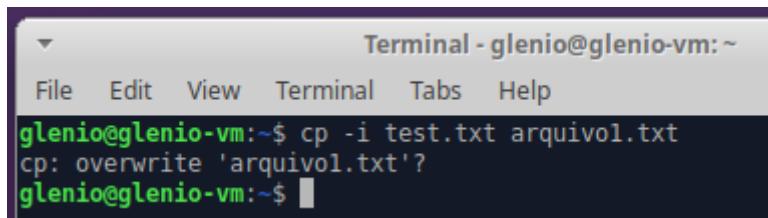
```
Terminal - glenio@glenio-vm:~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ cp Desktop/arquivo1.txt Documents/arquivo2.txt Music/arquivo3.txt /home/glenio/
glenio@glenio-vm:~$ ls
arquivo1.txt arquivo3.txt Documents Music Public test.txt
arquivo2.txt Desktop Downloads Pictures Templates Videos
glenio@glenio-vm:~$
```

3.27: Copiando um Arquivo em Outro



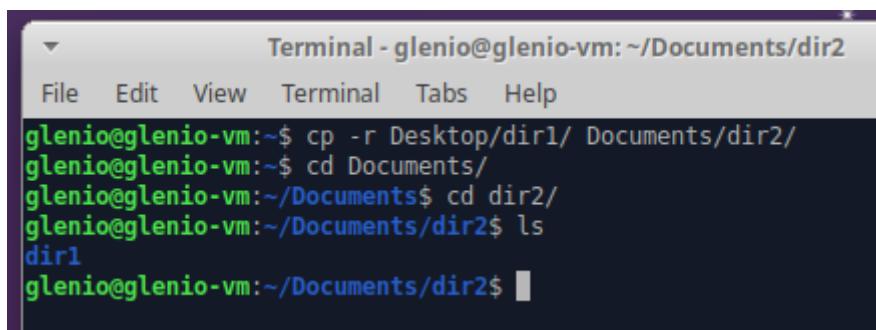
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cp test.txt arquivol.txt  
glenio@glenio-vm:~$ ls  
arquivol.txt arquivo3.txt Documents Music Public test.txt  
arquivo2.txt Desktop Downloads Pictures Templates Videos  
glenio@glenio-vm:~$
```

3.28: Copiando com a Opção -i



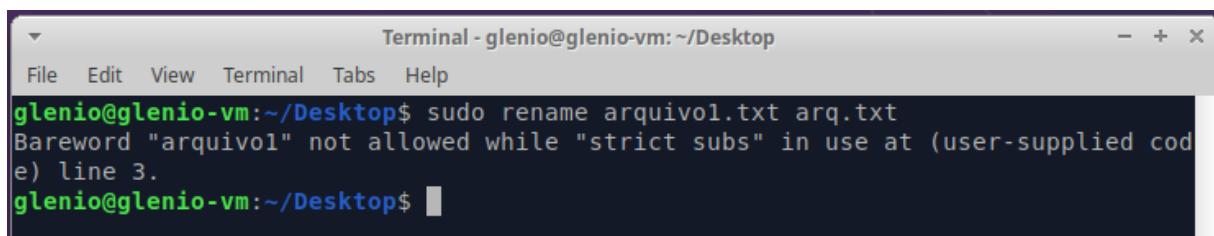
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cp -i test.txt arquivol.txt  
cp: overwrite 'arquivol.txt'?  
glenio@glenio-vm:~$
```

3.29: Copiando Diretórios



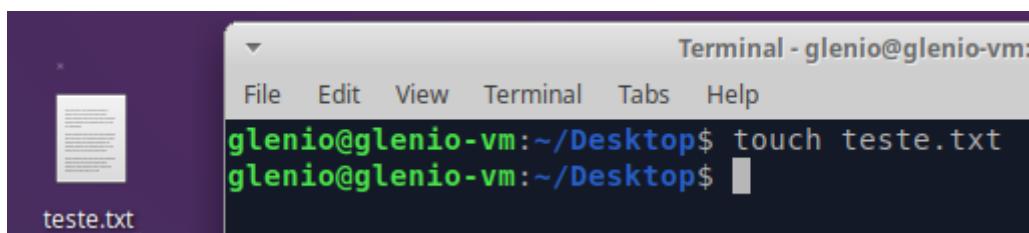
```
Terminal - glenio@glenio-vm:~/Documents/dir2  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cp -r Desktop/dir1/ Documents/dir2/  
glenio@glenio-vm:~$ cd Documents/  
glenio@glenio-vm:~/Documents$ cd dir2/  
glenio@glenio-vm:~/Documents/dir2$ ls  
dir1  
glenio@glenio-vm:~/Documents/dir2$
```

3.30: Renomeando Arquivos com rename



```
Terminal - glenio@glenio-vm:~/Desktop  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~/Desktop$ sudo rename arquivol.txt arq.txt  
Bareword "arquivol" not allowed while "strict subs" in use at (user-supplied code) line 3.  
glenio@glenio-vm:~/Desktop$
```

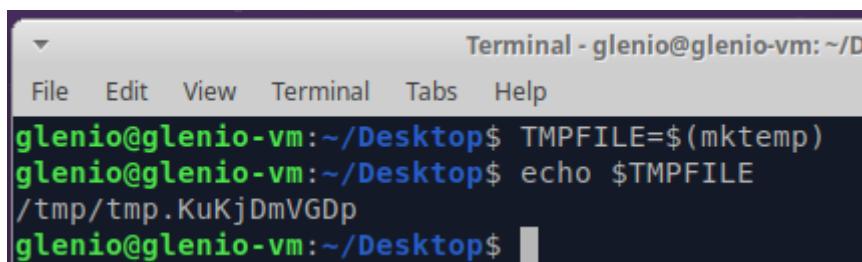
3.31: Criando Arquivos com touch



```
Terminal - glenio@glenio-vm:~/Desktop
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ touch teste.txt
glenio@glenio-vm:~/Desktop$
```

A screenshot of a terminal window titled "Terminal - glenio@glenio-vm:~/Desktop". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main area shows the command "touch teste.txt" being run, followed by a new line. To the left of the terminal window, there is a small icon representing a document labeled "teste.txt".

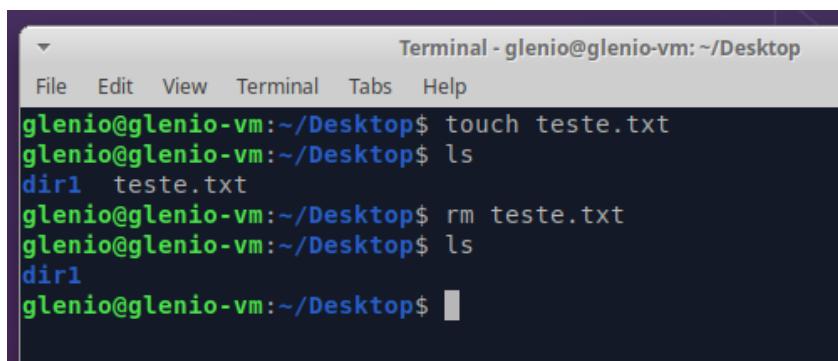
3.32: Criando arquivo temporário



```
Terminal - glenio@glenio-vm:~/Desktop
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ TMPFILE=$(mktemp)
glenio@glenio-vm:~/Desktop$ echo $TMPFILE
/tmp/tmp.KuKjDmVGDp
glenio@glenio-vm:~/Desktop$
```

A screenshot of a terminal window titled "Terminal - glenio@glenio-vm:~/Desktop". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main area shows the commands "TMPFILE=\$(mktemp)" and "echo \$TMPFILE" being run, resulting in the output "/tmp/tmp.KuKjDmVGDp".

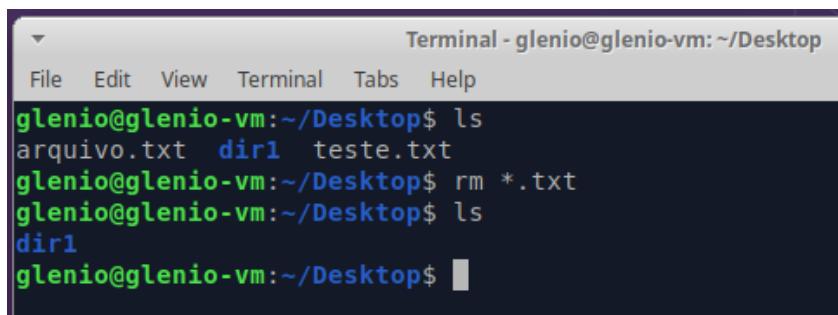
3.33: Apagando um Arquivo



```
Terminal - glenio@glenio-vm:~/Desktop
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ touch teste.txt
glenio@glenio-vm:~/Desktop$ ls
dir1 teste.txt
glenio@glenio-vm:~/Desktop$ rm teste.txt
glenio@glenio-vm:~/Desktop$ ls
dir1
glenio@glenio-vm:~/Desktop$
```

A screenshot of a terminal window titled "Terminal - glenio@glenio-vm:~/Desktop". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main area shows the creation of a file "teste.txt" with "touch", listing it with "ls", deleting it with "rm", and then listing it again to show it's gone.

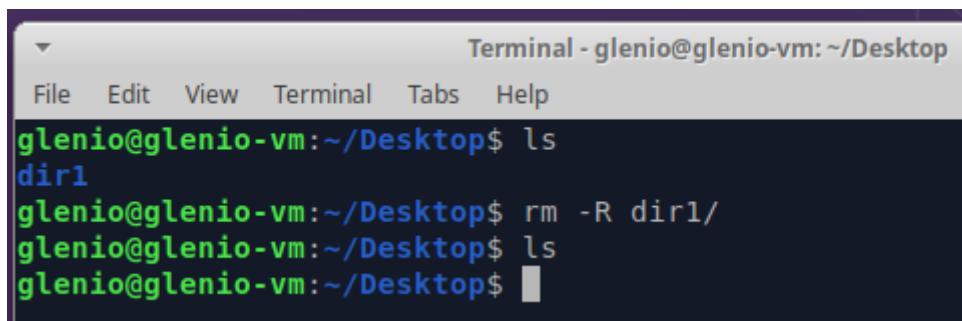
3.34: Apagando Múltiplos Arquivos



```
Terminal - glenio@glenio-vm:~/Desktop
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ ls
arquivo.txt dir1 teste.txt
glenio@glenio-vm:~/Desktop$ rm *.txt
glenio@glenio-vm:~/Desktop$ ls
dir1
glenio@glenio-vm:~/Desktop$
```

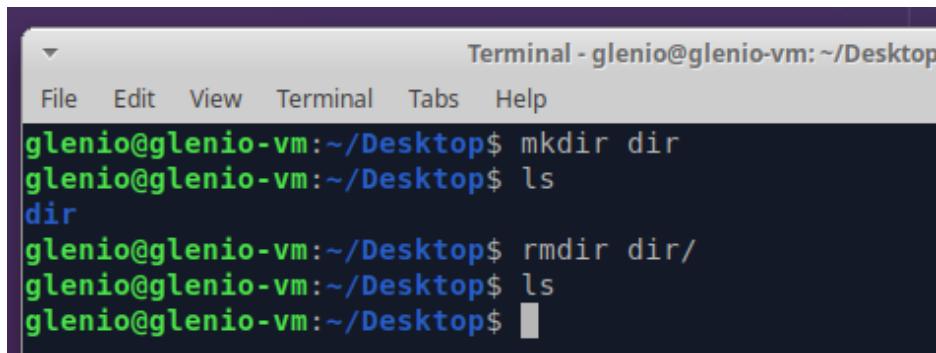
A screenshot of a terminal window titled "Terminal - glenio@glenio-vm:~/Desktop". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main area shows the deletion of all ".txt" files in the current directory with "rm *.txt", and then listing the directory to show that the files are gone.

3.35: Apagando Diretório



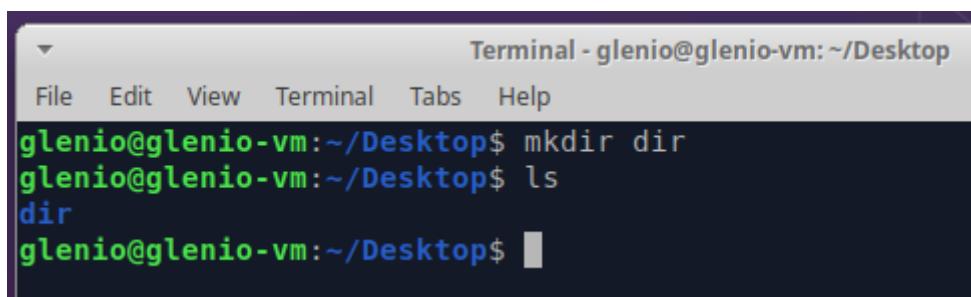
```
Terminal - glenio@glenio-vm: ~/Desktop
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ ls
dir1
glenio@glenio-vm:~/Desktop$ rm -R dir1/
glenio@glenio-vm:~/Desktop$ ls
glenio@glenio-vm:~/Desktop$
```

3.36: Apagando Diretório com rmdir



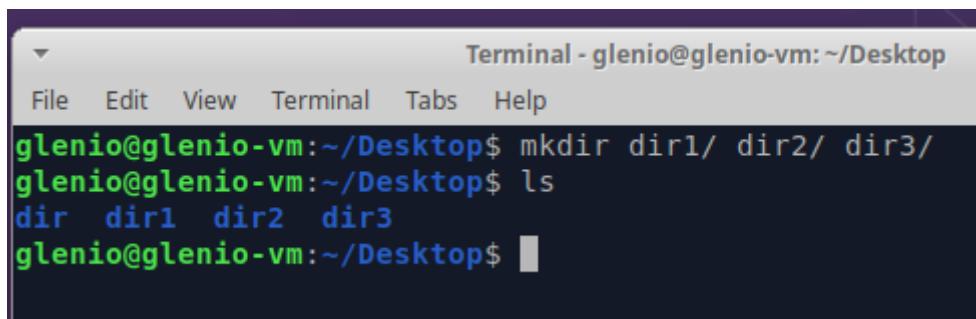
```
Terminal - glenio@glenio-vm: ~/Desktop
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ mkdir dir
glenio@glenio-vm:~/Desktop$ ls
dir
glenio@glenio-vm:~/Desktop$ rmdir dir/
glenio@glenio-vm:~/Desktop$ ls
glenio@glenio-vm:~/Desktop$
```

3.38: Criando Diretório com mkdir



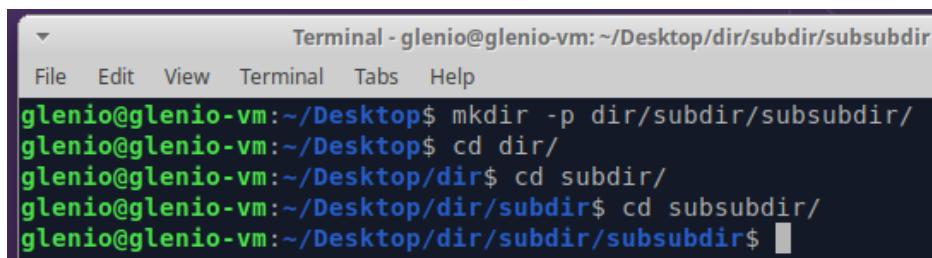
```
Terminal - glenio@glenio-vm: ~/Desktop
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ mkdir dir
glenio@glenio-vm:~/Desktop$ ls
dir
glenio@glenio-vm:~/Desktop$
```

3.39: Criando Múltiplos Diretórios



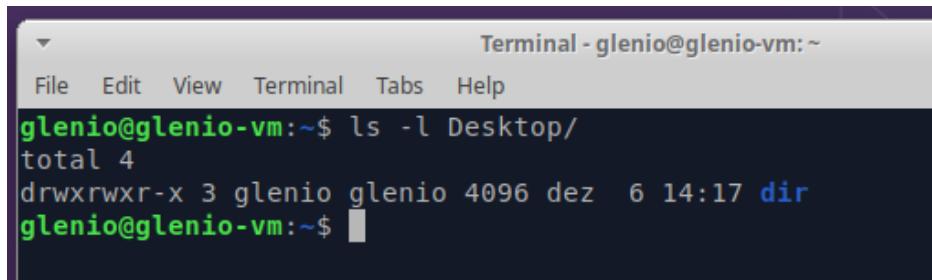
```
Terminal - glenio@glenio-vm: ~/Desktop
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ mkdir dir1/ dir2/ dir3/
glenio@glenio-vm:~/Desktop$ ls
dir dir1 dir2 dir3
glenio@glenio-vm:~/Desktop$
```

3.40: Criando Árvore de Diretórios



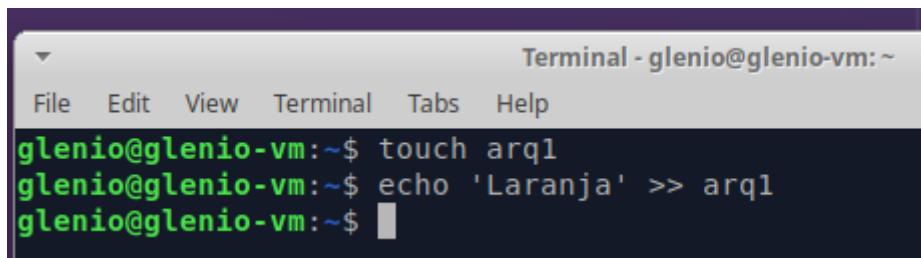
```
Terminal - glenio@glenio-vm: ~/Desktop/dir/subdir/subsubdir
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ mkdir -p dir/subdir/subsubdir/
glenio@glenio-vm:~/Desktop$ cd dir/
glenio@glenio-vm:~/Desktop/dir$ cd subdir/
glenio@glenio-vm:~/Desktop/dir/subdir$ cd subsubdir/
glenio@glenio-vm:~/Desktop/dir/subdir/subsubdir$
```

3.41: Links versus Arquivos e Diretórios



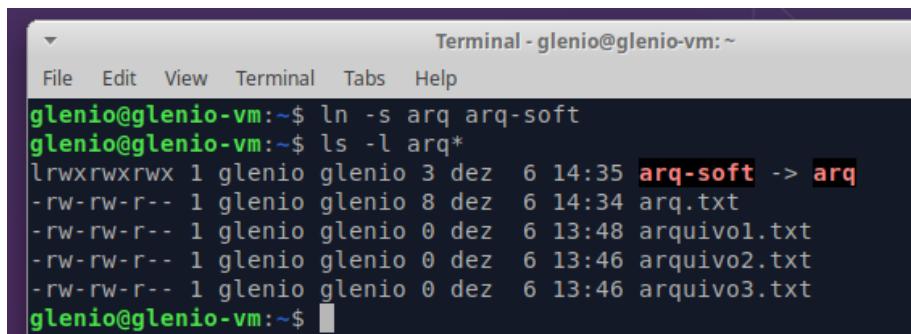
```
Terminal - glenio@glenio-vm: ~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ ls -l Desktop/
total 4
drwxrwxr-x 3 glenio glenio 4096 dez  6 14:17 dir
glenio@glenio-vm:~$
```

3.42: Criando um Arquivo



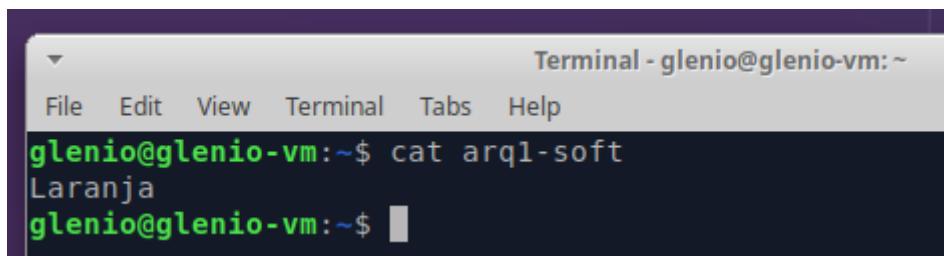
```
Terminal - glenio@glenio-vm: ~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ touch arq1
glenio@glenio-vm:~$ echo 'Laranja' >> arq1
glenio@glenio-vm:~$
```

3.43: Criando um Link Simbólico



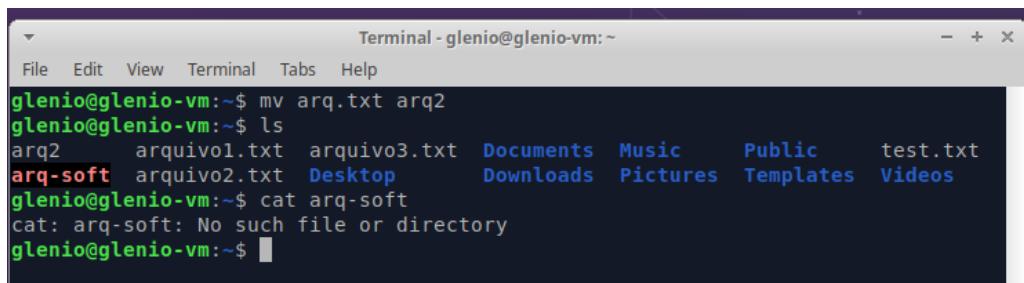
```
Terminal - glenio@glenio-vm: ~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ ln -s arq arq-soft
glenio@glenio-vm:~$ ls -l arq*
lrwxrwxrwx 1 glenio glenio 3 dez  6 14:35 arq-soft -> arq
-rw-rw-r-- 1 glenio glenio 8 dez  6 14:34 arq.txt
-rw-rw-r-- 1 glenio glenio 0 dez  6 13:48 arquivo1.txt
-rw-rw-r-- 1 glenio glenio 0 dez  6 13:46 arquivo2.txt
-rw-rw-r-- 1 glenio glenio 0 dez  6 13:46 arquivo3.txt
glenio@glenio-vm:~$
```

3.44: Verificando o Conteúdo do Arquivo



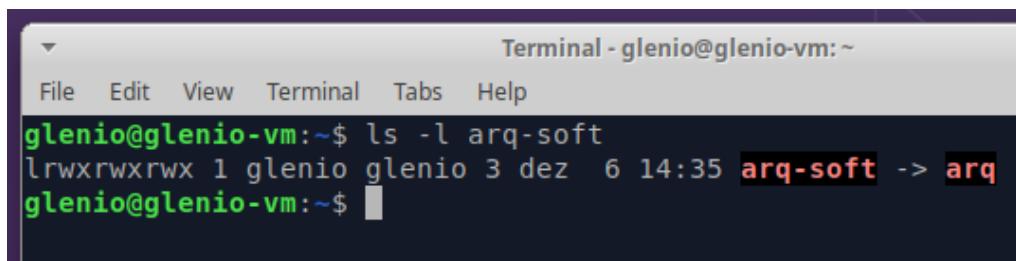
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cat arql-soft  
Laranja  
glenio@glenio-vm:~$
```

3.45: Movendo o Arquivo



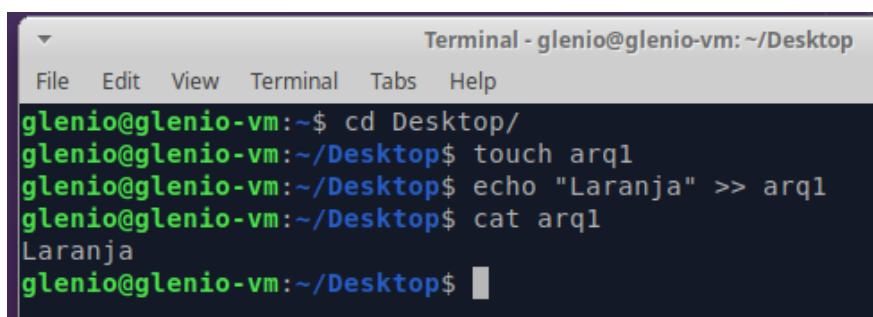
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ mv arq.txt arq2  
glenio@glenio-vm:~$ ls  
arq2 arquivol.txt arquivo3.txt Documents Music Public test.txt  
arq-soft arquivo2.txt Desktop Downloads Pictures Templates Videos  
glenio@glenio-vm:~$ cat arq-soft  
cat: arq-soft: No such file or directory  
glenio@glenio-vm:~$
```

3.46: Visualizando os Links



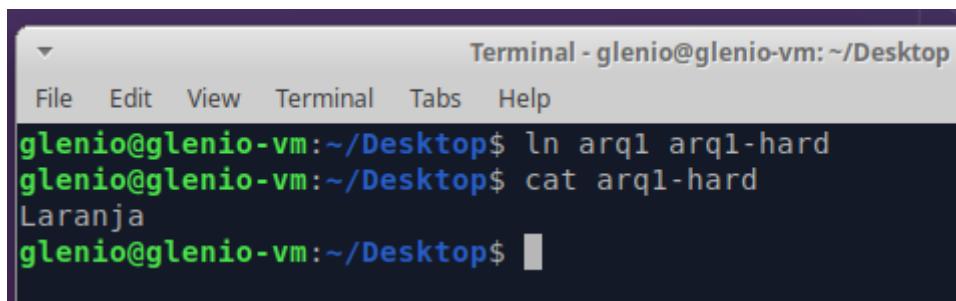
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ls -l arq-soft  
lrwxrwxrwx 1 glenio glenio 3 dez 6 14:35 arq-soft -> arq  
glenio@glenio-vm:~$
```

3.47: Hard Links - Passo 1



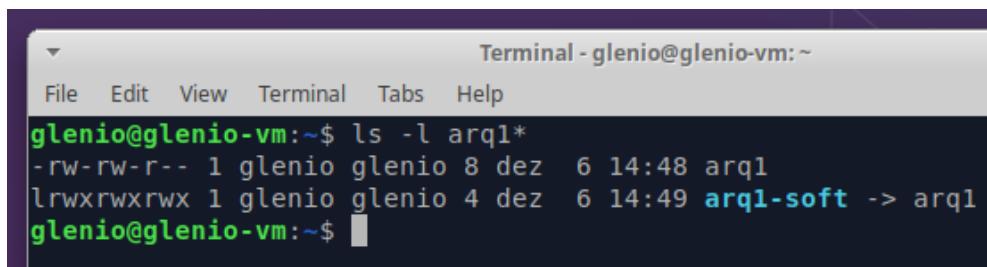
```
Terminal - glenio@glenio-vm:~/Desktop  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cd Desktop/  
glenio@glenio-vm:~/Desktop$ touch arql  
glenio@glenio-vm:~/Desktop$ echo "Laranja" >> arql  
glenio@glenio-vm:~/Desktop$ cat arql  
Laranja  
glenio@glenio-vm:~/Desktop$
```

3.48: Hard Links - Passo 2



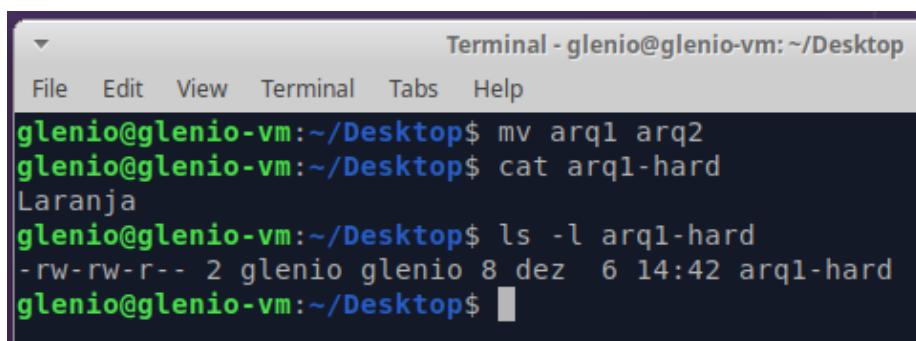
```
Terminal - glenio@glenio-vm: ~/Desktop
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ ln arq1 arq1-hard
glenio@glenio-vm:~/Desktop$ cat arq1-hard
Laranja
glenio@glenio-vm:~/Desktop$
```

3.49: Hard Links - Passo 3



```
Terminal - glenio@glenio-vm: ~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ ls -l arq1*
-rw-rw-r-- 1 glenio glenio 8 dez  6 14:48 arq1
lrwxrwxrwx 1 glenio glenio 4 dez  6 14:49 arq1-soft -> arq1
glenio@glenio-vm:~$
```

3.50: Hard Links - Passo 4



```
Terminal - glenio@glenio-vm: ~/Desktop
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ mv arq1 arq2
glenio@glenio-vm:~/Desktop$ cat arq1-hard
Laranja
glenio@glenio-vm:~/Desktop$ ls -l arq1-hard
-rw-rw-r-- 2 glenio glenio 8 dez  6 14:42 arq1-hard
glenio@glenio-vm:~/Desktop$
```

arq1-hard continua existindo, pois aponta para a posição do arquivo no disco e não seu nome

Capítulo 4 : Comandos para Manipulação de Arquivos Texto

4.1 e 4.2: Comando echo

```
Terminal - glenio@glenio-vm: ~/Desktop
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ echo "Ola, Glenio"
Ola, Glenio
glenio@glenio-vm:~/Desktop$
```

```
Terminal - glenio@glenio-vm: ~/Desktop
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ echo -en 'ola\tGlenio'
ola      Glenio
glenio@glenio-vm:~/Desktop$
```

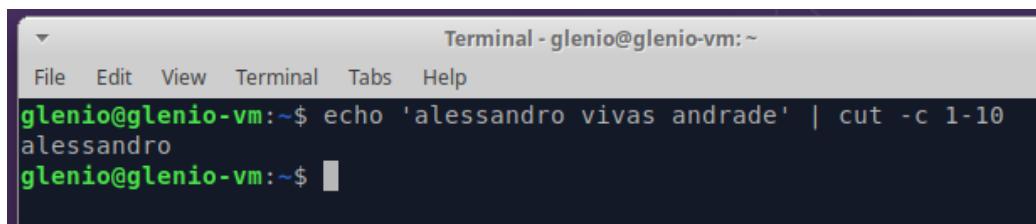
4.3: Comando cat

```
Terminal - glenio@glenio-vm: ~/De
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Desktop$ cat cidades.txt
Castanhal (PA)
Belém (PA)
Uberlândia (MG)
Claudio (MG)
glenio@glenio-vm:~/Desktop$
```

4.4: Comando cat com dois arquivos

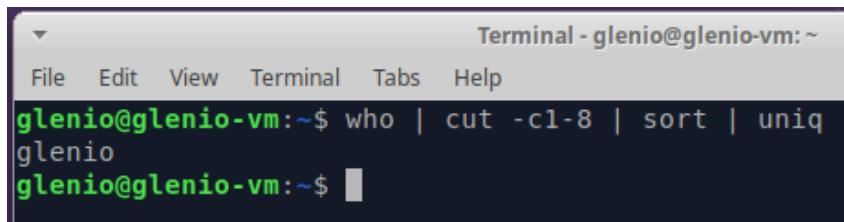
```
Terminal - glenio@glenio-vm: ~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ seq 1 5 > arq1.txt
glenio@glenio-vm:~$ seq 6 10 > arq2.txt
glenio@glenio-vm:~$ ls
arq1-soft  arq2      Desktop    Downloads  Pictures  Templates
arq1.txt   arq2.txt  Documents  Music     Public    Videos
glenio@glenio-vm:~$ cat arq1.txt arq2.txt
1
2
3
4
5
6
7
8
9
10
glenio@glenio-vm:~$
```

4.5: Comando cut



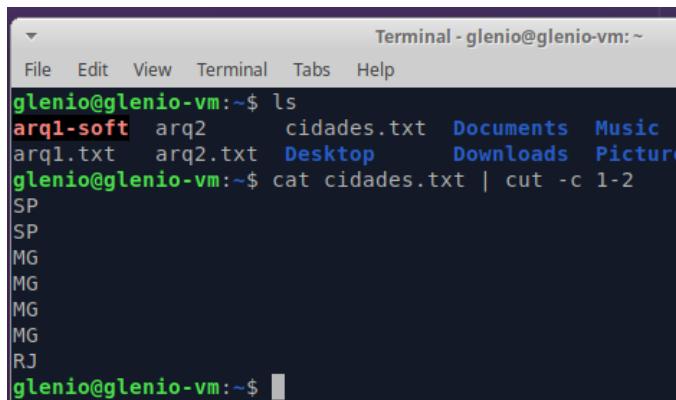
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ echo 'alessandro vivas andrade' | cut -c 1-10  
alessandro  
glenio@glenio-vm:~$
```

4.6: Usando o comando cut para listar os usuários logados



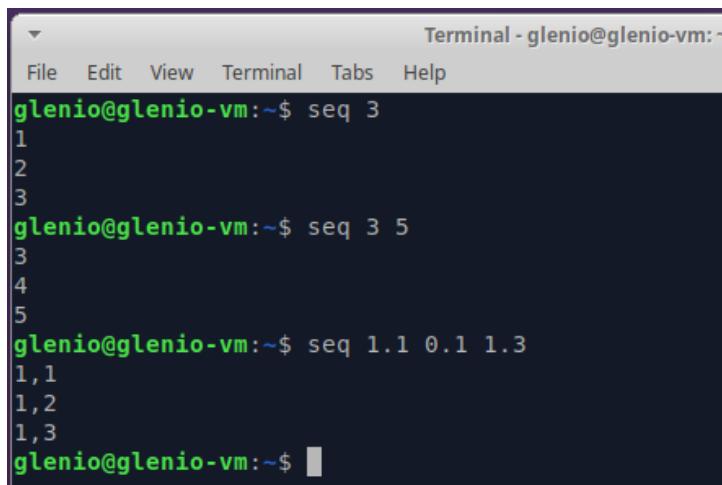
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ who | cut -c1-8 | sort | uniq  
glenio  
glenio@glenio-vm:~$
```

4.7: Arquivo com Cidades



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ls  
arq1-soft arq2 cidades.txt Documents Music  
arq1.txt arq2.txt Desktop Downloads Pictures  
glenio@glenio-vm:~$ cat cidades.txt | cut -c 1-2  
SP  
SP  
MG  
MG  
MG  
MG  
RJ  
glenio@glenio-vm:~$
```

4.9, 4.10 e 4.11: Gerando uma sequência de números



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ seq 3  
1  
2  
3  
glenio@glenio-vm:~$ seq 3 5  
3  
4  
5  
glenio@glenio-vm:~$ seq 1.1 0.1 1.3  
1,1  
1,2  
1,3  
glenio@glenio-vm:~$
```

4.13: Tabulações Convertidas para 1 Espaço

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cat cidades.txt | expand -t 1  
SP Sao Paulo : pedro  
SP Campinas : andre  
MG Belo Horizonte : marta  
MG Diamantina : lucas  
MG Lavras : rafael  
MG Bom Sucesso : lisa  
RJ Rio de Janeiro : alexandro  
glenio@glenio-vm:~$ █
```

4.14: Convertendo Tabulações

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cat cidades.txt | expand -t 10  
SP Sao Paulo : pedro  
SP Campinas : andre  
MG Belo Horizonte : marta  
MG Diamantina : lucas  
MG Lavras : rafael  
MG Bom Sucesso : lisa  
RJ Rio de Janeiro : alexandro  
glenio@glenio-vm:~$ █
```

4.15: Convertendo tabulações em espaço simples

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cat cidades.txt  
SP Sao Paulo : pedro  
SP Campinas : andre  
MG Belo Horizonte : marta  
MG Diamantina : lucas  
MG Lavras : rafael  
MG Bom Sucesso : lisa  
RJ Rio de Janeiro : alexandro  
glenio@glenio-vm:~$ cat cidades.txt | tr '\t' ' '  
SP Sao Paulo : pedro  
SP Campinas : andre  
MG Belo Horizonte : marta  
MG Diamantina : lucas  
MG Lavras : rafael  
MG Bom Sucesso : lisa  
RJ Rio de Janeiro : alexandro  
glenio@glenio-vm:~$ █
```

4.16: Convertendo tabulações em espaço simples e removendo múltiplas ocorrências de espaços

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cat cidades.txt  
SP Sao Paulo : pedro  
SP Campinas : andre  
MG Belo Horizonte : marta  
MG Diamantina : lucas  
MG Lavras : rafael  
MG Bom Sucesso : lisa  
RJ Rio de Janeiro : alexandro  
glenio@glenio-vm:~$ cat cidades.txt | tr '\t' ' ' | tr -s ' '  
SP Sao Paulo : pedro  
SP Campinas : andre  
MG Belo Horizonte : marta  
MG Diamantina : lucas  
MG Lavras : rafael  
MG Bom Sucesso : lisa  
RJ Rio de Janeiro : alexandro  
glenio@glenio-vm:~$
```

4.17: Convertendo MAIÚSCULA em minúsculas

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ tr 'A-Z' 'a-z' < cidades.txt  
sp sao paulo : pedro  
sp campinas : andre  
mg belo horizonte : marta  
mg diamantina : lucas  
mg lavras : rafael  
mg bom sucesso : lisa  
rj rio de janeiro : alexandro  
glenio@glenio-vm:~$
```

4.18: Outra forma de converter MAIÚSCULA em minúsculas

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cat cidades.txt | tr [:upper:] [:lower:]  
sp sao paulo : pedro  
sp campinas : andre  
mg belo horizonte : marta  
mg diamantina : lucas  
mg lavras : rafael  
mg bom sucesso : lisa  
rj rio de janeiro : alexandro  
glenio@glenio-vm:~$
```

4.19: Transformar espaços em quebra de linha

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cat cidades.txt | tr -s [:space:] '\n'  
SP  
Sao  
Paulo  
:  
pedro  
SP  
Campinas  
:  
andre  
MG  
Belo  
Horizonte  
:  
marta  
MG  
Diamantina  
:  
lucas  
MG  
Lavras  
:  
rafael
```

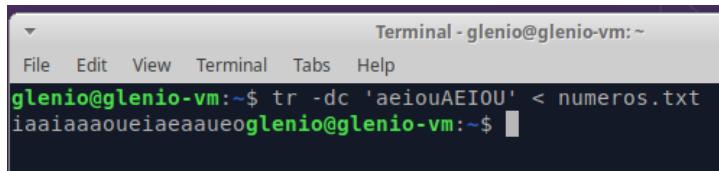
4.20: Substituir chaves por parênteses

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ echo 'a{1} , b{2}' | tr '{}()' '()'  
a(1) , b(2)  
glenio@glenio-vm:~$
```

4.21: Duas maneiras para se remover dígitos

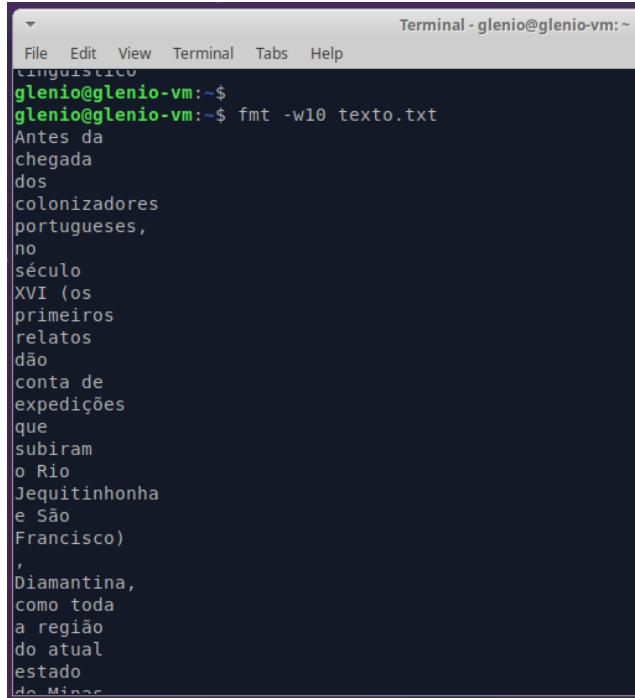
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cat numeros.txt  
1 Diamantina  
2 Datas  
3 Gouveia  
4 Mendanha  
5 Curvelo  
glenio@glenio-vm:~$ cat numeros.txt | tr -d [:digit:]  
Diamantina  
Datas  
Gouveia  
Mendanha  
Curvelo  
glenio@glenio-vm:~$ cat numeros.txt | tr -d '0-9'  
Diamantina  
Datas  
Gouveia  
Mendanha  
Curvelo  
glenio@glenio-vm:~$
```

4.22: Usando o complemento para remover as consoantes



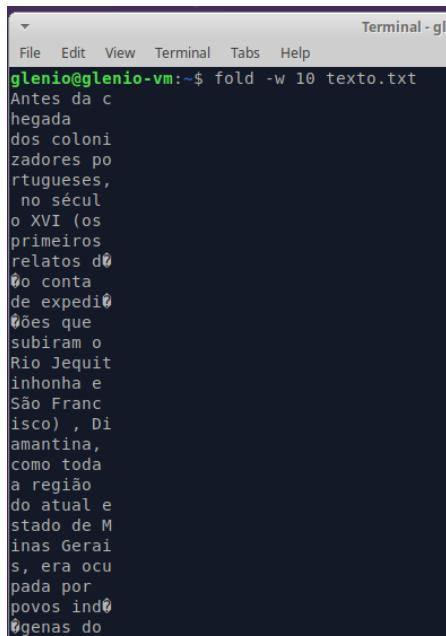
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ tr -dc 'aeiouAEIOU' < numeros.txt  
iaiaiaaaoueiaeaaueoglenio@glenio-vm:~$
```

4.23: Formatando Linhas com o Comando fmt



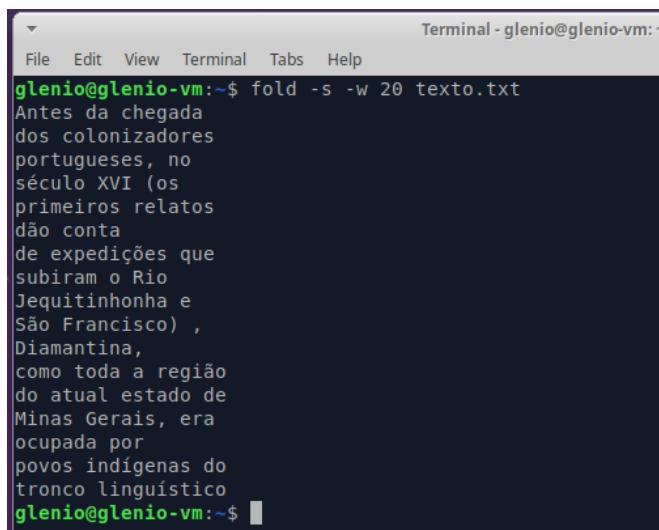
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ fmt -w10 texto.txt  
Antes da  
chegada  
dos  
colonizadores  
portugueses,  
no  
século  
XVI (os  
primeiros  
relatos  
dão  
conta de  
expedições  
que  
subiram  
o Rio  
Jequitinhonha  
e São  
Francisco)  
,  
Diamantina,  
como toda  
a região  
do atual  
estado  
do Minas
```

4.24: Usando o comando fold para limitar a largura do texto



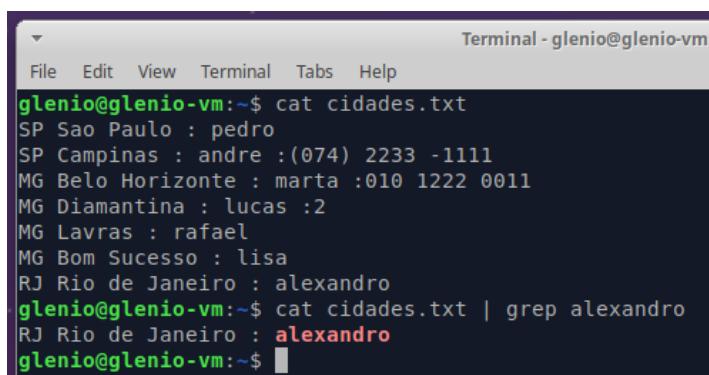
```
Terminal - glenio@glenio-vm:~$ fold -w 10 texto.txt  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ fold -w 10 texto.txt  
Antes da c  
hegada  
dos coloni  
zadores po  
rtugueses,  
no sécul  
o XVI (os  
primeiros  
relatos d  
ão conta  
de expedi  
ões que  
subiram o  
Rio Jequit  
inhonha e  
São Franc  
isco) , Di  
amantina,  
como toda  
a região  
do atual e  
estado de M  
inas Gerai  
s, era ocu  
pada por  
povos ind  
igenas do
```

4.25: Usando o comando fold com quebra preferencial nos espaços



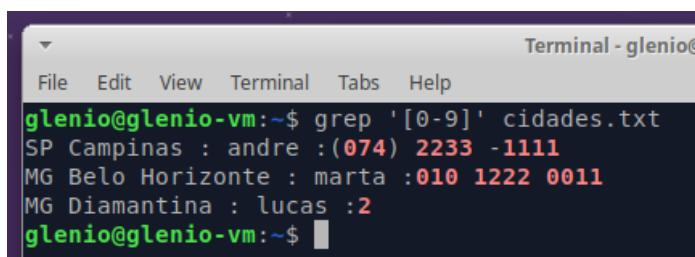
```
Terminal - glenio@glenio-vm:~$ fold -s -w 20 texto.txt
Antes da chegada
dos colonizadores
portugueses, no
século XVI (os
primeiros relatos
dão conta
de expedições que
subiram o Rio
Jequitinhonha e
São Francisco) ,
Diamantina,
como toda a região
do atual estado de
Minas Gerais, era
ocupada por
povos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

4.27: Filtrando com grep



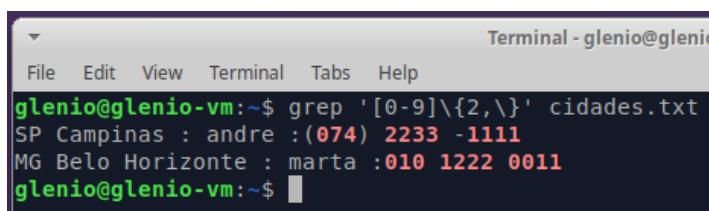
```
Terminal - glenio@glenio-vm:~$ cat cidades.txt
SP Sao Paulo : pedro
SP Campinas : andre :(074) 2233 -1111
MG Belo Horizonte : marta :010 1222 0011
MG Diamantina : lucas :2
MG Lavras : rafael
MG Bom Sucesso : lisa
RJ Rio de Janeiro : alexandro
glenio@glenio-vm:~$ cat cidades.txt | grep alexandro
RJ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

4.28: Usando regexp no grep



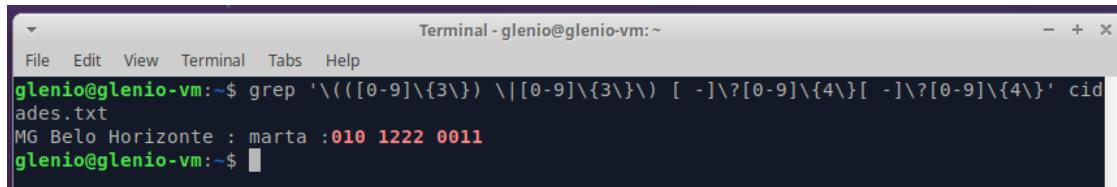
```
Terminal - glenio@glenio-vm:~$ grep '[0-9]' cidades.txt
SP Campinas : andre :(074) 2233 -1111
MG Belo Horizonte : marta :010 1222 0011
MG Diamantina : lucas :2
glenio@glenio-vm:~$
```

4.29: Usando regexp no grep



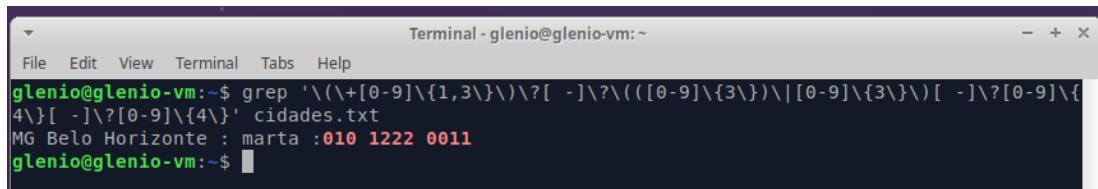
```
Terminal - glenio@glenio
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ grep '[0-9]\{2,\}' cidades.txt
SP Campinas : andre :(074) 2233 -1111
MG Belo Horizonte : marta :010 1222 0011
glenio@glenio-vm:~$
```

4.30: Usando regexp e grep para encontrar as linhas contendo números de telefone



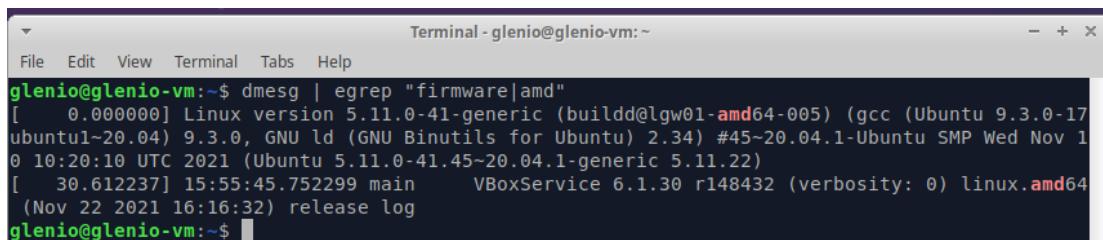
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ grep '\(([0-9]\{3\})\ | [0-9]\{3\}\) [ -]\? [0-9]\{4\} [ -]\? [0-9]\{4\}' cidades.txt  
MG Belo Horizonte : marta :010 1222 0011  
glenio@glenio-vm:~$
```

4.31: Usando regexp e grep para encontrar as linhas contendo números de telefone (inclusive com prefixo internacional)



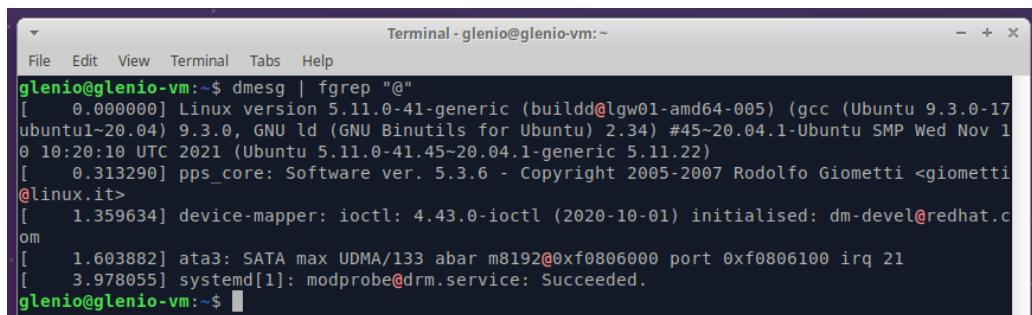
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ grep '\([0-9]\{1,3\}\)\? [ -]\? \(([0-9]\{3\})\|[0-9]\{3\}\)[ -]\? [0-9]\{4\}[ -]\? [0-9]\{4\}' cidades.txt  
MG Belo Horizonte : marta :010 1222 0011  
glenio@glenio-vm:~$
```

4.32: Filtrando com egrep



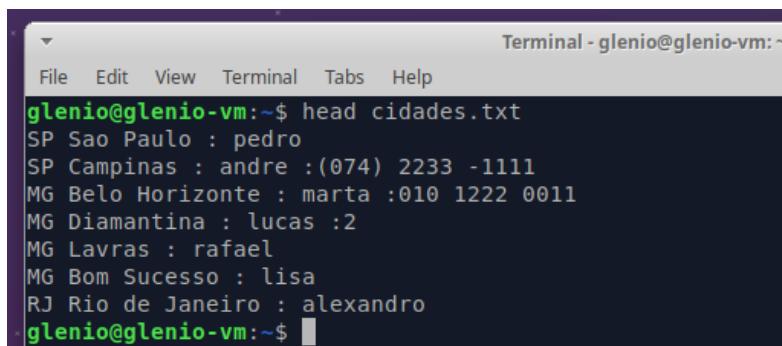
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ dmesg | egrep "firmware|amd"  
[ 0.000000] Linux version 5.11.0-41-generic (buildd@lgw01-amd64-005) (gcc (Ubuntu 9.3.0-17  
ubuntu1~20.04) 9.3.0, GNU ld (GNU Binutils for Ubuntu) 2.34) #45~20.04.1-Ubuntu SMP Wed Nov 1  
0 10:20:10 UTC 2021 (Ubuntu 5.11.0-41.45~20.04.1-generic 5.11.22)  
[ 30.612237] 15:55:45.752299 main      VBoxService 6.1.30 r148432 (verbosity: 0) linux.amd64  
(Nov 22 2021 16:16:32) release log  
glenio@glenio-vm:~$
```

4.33: Filtrando com fgrep



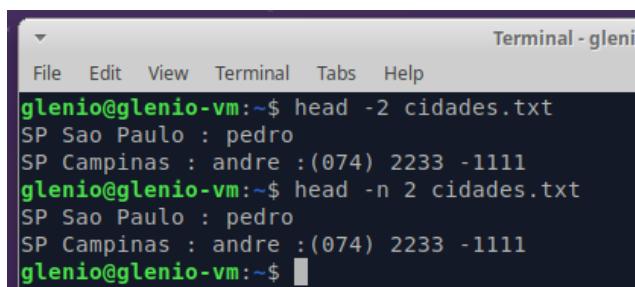
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ dmesg | fgrep "@"  
[ 0.000000] Linux version 5.11.0-41-generic (buildd@lgw01-amd64-005) (gcc (Ubuntu 9.3.0-17  
ubuntu1~20.04) 9.3.0, GNU ld (GNU Binutils for Ubuntu) 2.34) #45~20.04.1-Ubuntu SMP Wed Nov 1  
0 10:20:10 UTC 2021 (Ubuntu 5.11.0-41.45~20.04.1-generic 5.11.22)  
[ 0.313290] pps_core: Software ver. 5.3.6 - Copyright 2005-2007 Rodolfo Giometti <giometti  
@linux.it>  
[ 1.359634] device-mapper: ioctl: 4.43.0-ioctl (2020-10-01) initialised: dm-devel@redhat.c  
om  
[ 1.603882] ata3: SATA max UDMA/133 abar m8192@0xf0806000 port 0xf0806100 irq 21  
[ 3.978055] systemd[1]: modprobe@drm.service: Succeeded.  
glenio@glenio-vm:~$
```

4.34: Imprime as Linhas Iniciais de um Arquivo



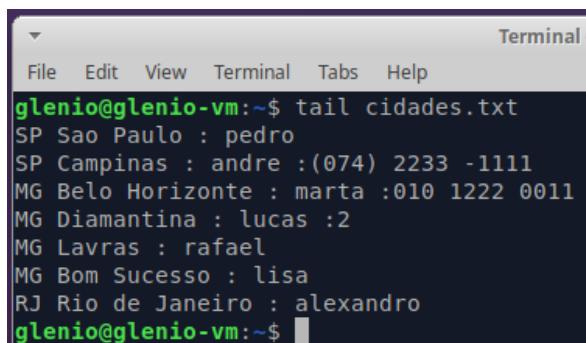
```
Terminal - glenio@glenio-vm:~$ head cidades.txt
SP Sao Paulo : pedro
SP Campinas : andre :(074) 2233 -1111
MG Belo Horizonte : marta :010 1222 0011
MG Diamantina : lucas :2
MG Lavras : rafael
MG Bom Sucesso : lisa
RJ Rio de Janeiro : alexandro
glenio@glenio-vm:~$
```

4.35: Imprime as Duas Linhas Iniciais de um Arquivo



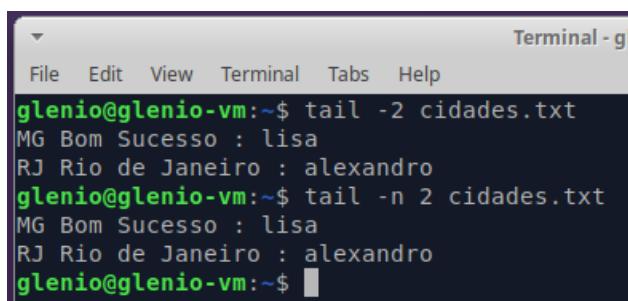
```
Terminal - gleni
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ head -2 cidades.txt
SP Sao Paulo : pedro
SP Campinas : andre :(074) 2233 -1111
glenio@glenio-vm:~$ head -n 2 cidades.txt
SP Sao Paulo : pedro
SP Campinas : andre :(074) 2233 -1111
glenio@glenio-vm:~$
```

4.36: Imprime as Linhas Finais de um Arquivo



```
Terminal
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ tail cidades.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
glenio@glenio-vm:~$
```

4.37: Imprime as Duas Linhas Finais de um Arquivo



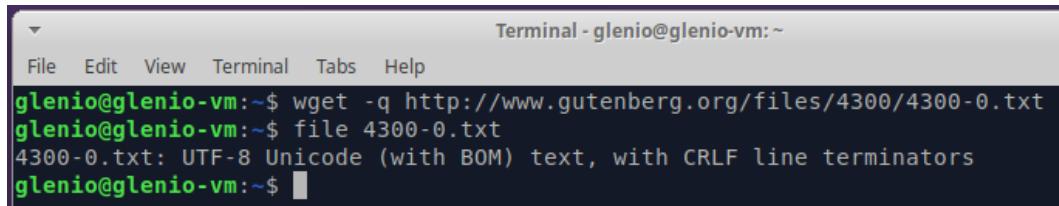
```
Terminal - g
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ tail -2 cidades.txt
MG Bom Sucesso : lisa
RJ Rio de Janeiro : alexandro
glenio@glenio-vm:~$ tail -n 2 cidades.txt
MG Bom Sucesso : lisa
RJ Rio de Janeiro : alexandro
glenio@glenio-vm:~$
```

4.38: Determinando o tipo do arquivo lena.jpg



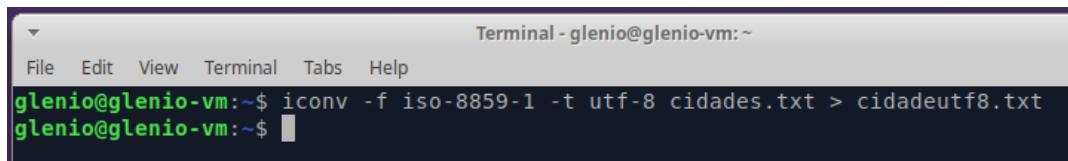
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ file lena.jpg  
lena.jpg: JPEG image data, JFIF standard 1.01, aspect ratio, density 1x1, segment length 16,  
baseline, precision 8, 512x512, components 3  
glenio@glenio-vm:~$
```

4.39: Determinando o tipo de um arquivo .txt



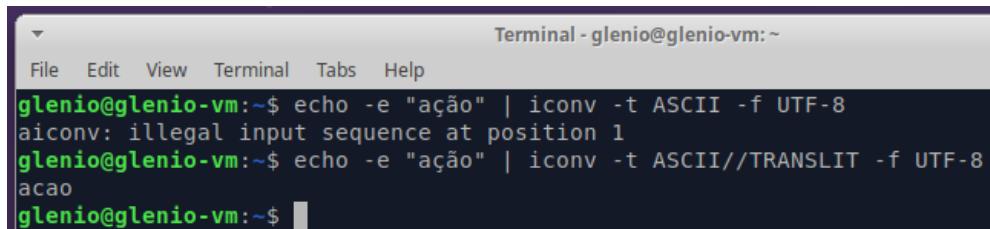
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ wget -q http://www.gutenberg.org/files/4300/4300-0.txt  
glenio@glenio-vm:~$ file 4300-0.txt  
4300-0.txt: UTF-8 Unicode (with BOM) text, with CRLF line terminators  
glenio@glenio-vm:~$
```

4.40: Convertendo Padrões de Caracteres



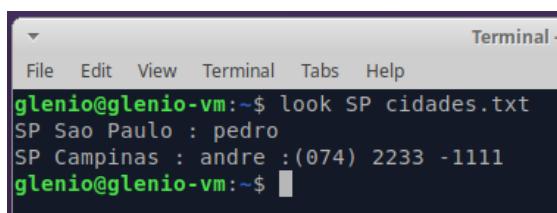
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ iconv -f iso-8859-1 -t utf-8 cidades.txt > cidadeutf8.txt  
glenio@glenio-vm:~$
```

4.41: Convertendo Padrões de Caracteres



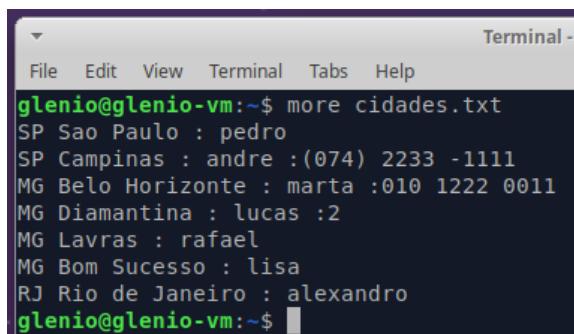
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ echo -e "ação" | iconv -t ASCII -f UTF-8  
aiconv: illegal input sequence at position 1  
glenio@glenio-vm:~$ echo -e "ação" | iconv -t ASCII//TRANSLIT -f UTF-8  
acao  
glenio@glenio-vm:~$
```

4.42: Comando look



```
Terminal -  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ look SP cidades.txt  
SP Sao Paulo : pedro  
SP Campinas : andre :(074) 2233 -1111  
glenio@glenio-vm:~$
```

4.43: Visualizando Arquivos Longos

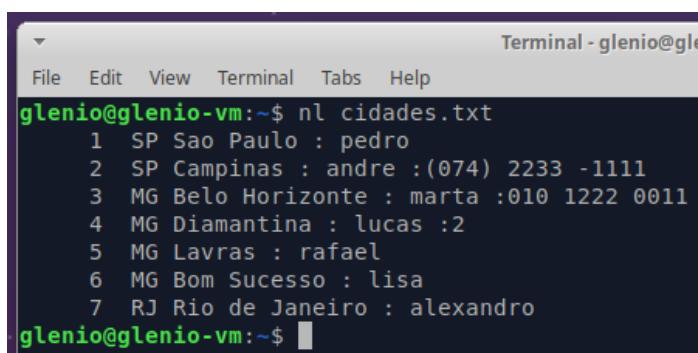


A screenshot of a terminal window titled "Terminal -". The menu bar includes "File", "Edit", "View", "Terminal", "Tabs", and "Help". The command entered is "glenio@glenio-vm:~\$ more cidades.txt". The output displays a list of cities and names from a file:

```
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
```

The prompt "glenio@glenio-vm:~\$" is visible at the bottom.

4.44: Contando o Número de Linhas

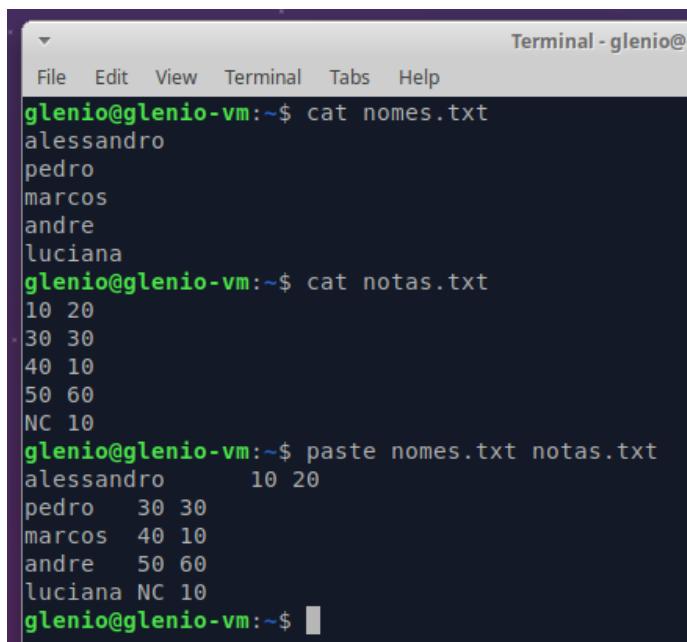


A screenshot of a terminal window titled "Terminal - glenio@glenio-vm:~\$". The menu bar includes "File", "Edit", "View", "Terminal", "Tabs", and "Help". The command entered is "nl cidades.txt". The output shows the same list of cities and names as the previous screenshot, but each line is preceded by a number (1 through 7), indicating the line count:

```
1 SP Sao Paulo : pedro
2 SP Campinas : andre :(074) 2233 -1111
3 MG Belo Horizonte : marta :010 1222 0011
4 MG Diamantina : lucas :2
5 MG Lavras : rafael
6 MG Bom Sucesso : lisa
7 RJ Rio de Janeiro : alexandro
```

The prompt "glenio@glenio-vm:~\$" is visible at the bottom.

4.46: Combinando Dois Arquivos com o Comando paste

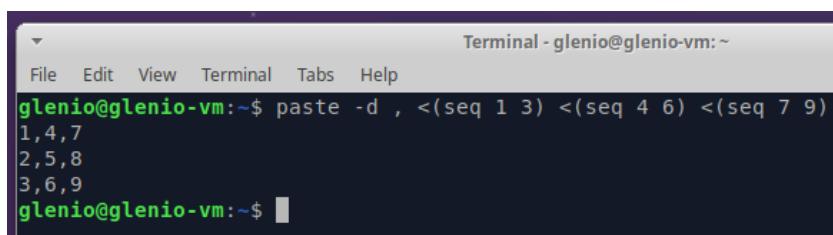


A screenshot of a terminal window titled "Terminal - glenio@glenio-vm:~\$". The menu bar includes "File", "Edit", "View", "Terminal", "Tabs", and "Help". The command entered is "paste nomes.txt notas.txt". The output shows the contents of two files combined side-by-side:

```
alessandro      10 20
pedro          30 30
marcos         40 10
andre          50 60
luciana        NC 10
```

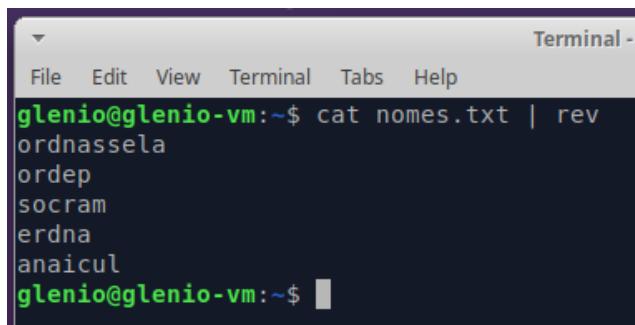
The prompt "glenio@glenio-vm:~\$" is visible at the bottom.

4.47: Combinando arquivos para formar um arquivo CSV



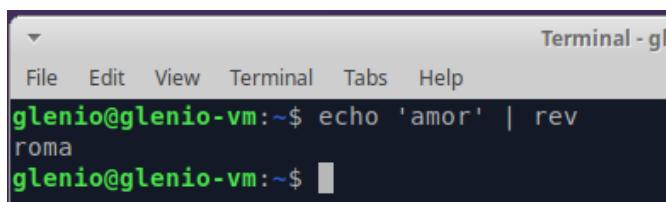
```
Terminal - glenio@glenio-vm:~$ paste -d , <(seq 1 3) <(seq 4 6) <(seq 7 9)
1,4,7
2,5,8
3,6,9
glenio@glenio-vm:~$
```

4.48: Comando para Inverter os Caracteres – rev



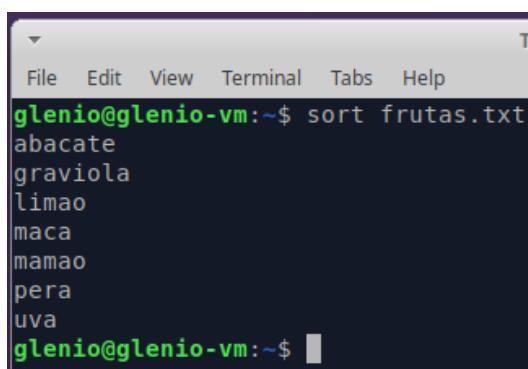
```
Terminal -
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ cat nomes.txt | rev
ordnassela
ordep
socram
erdna
anaicul
glenio@glenio-vm:~$
```

4.49: Invertendo Caracteres com rev



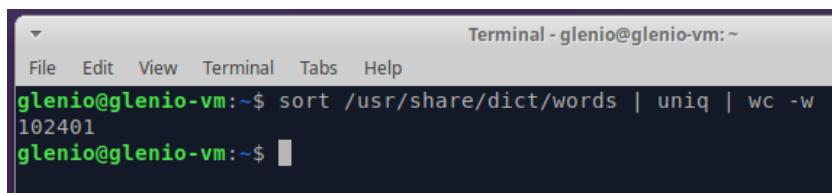
```
Terminal - gl
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ echo 'amor' | rev
roma
glenio@glenio-vm:~$
```

4.51: Ordenando Arquivos com sort



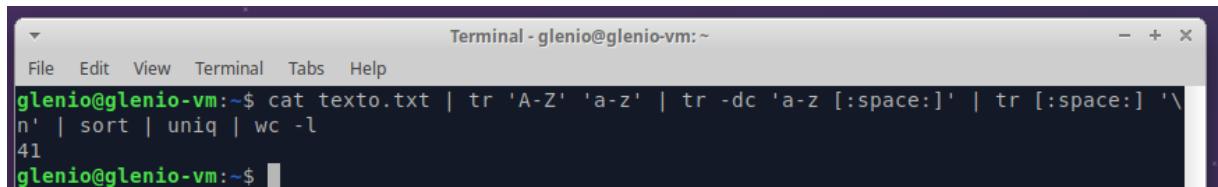
```
Terminal -
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ sort frutas.txt
abacate
graviola
limao
maca
mamao
pera
uva
glenio@glenio-vm:~$
```

4.52: Comando uniq



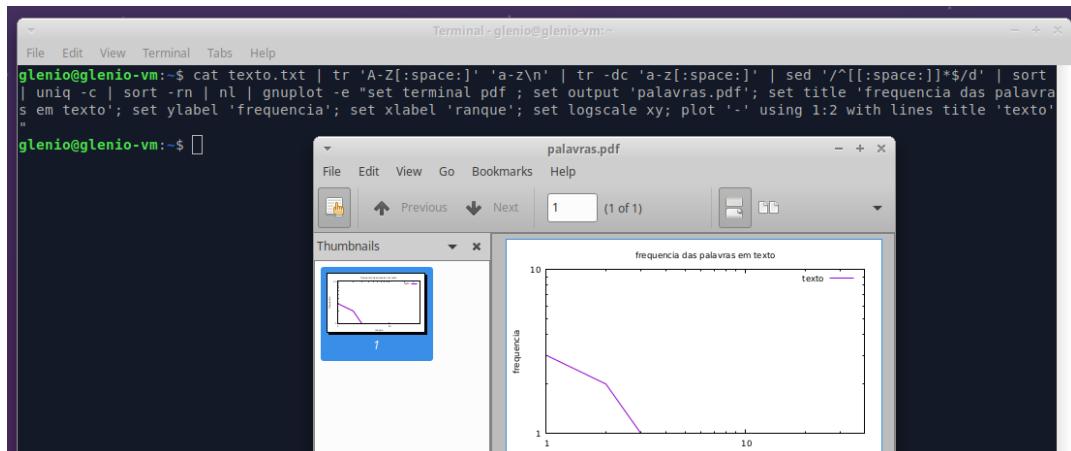
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ sort /usr/share/dict/words | uniq | wc -w  
102401  
glenio@glenio-vm:~$
```

4.53: Contando quantas palavras distintas existem em um texto

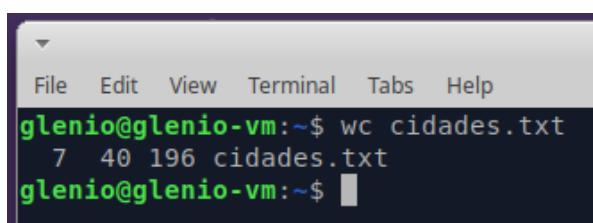


```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cat texto.txt | tr 'A-Z' 'a-z' | tr -dc 'a-z [:space:]' | tr [:space:] '\n' | sort | uniq | wc -l  
41  
glenio@glenio-vm:~$
```

4.54: Gráfico da frequência de ocorrência das palavras de um texto

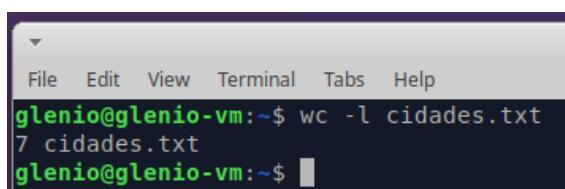


4.55: Contando o Número de Linhas, Palavras e Bytes



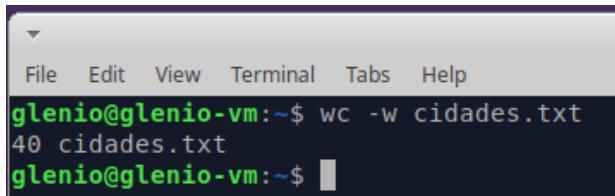
```
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ wc cidades.txt  
7 40 196 cidades.txt  
glenio@glenio-vm:~$
```

4.56: Contando o Número de Linhas



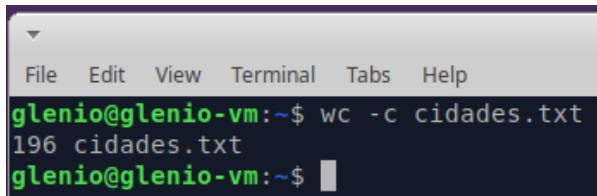
```
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ wc -l cidades.txt  
7 cidades.txt  
glenio@glenio-vm:~$
```

4.57: Contando o Número de Palavras



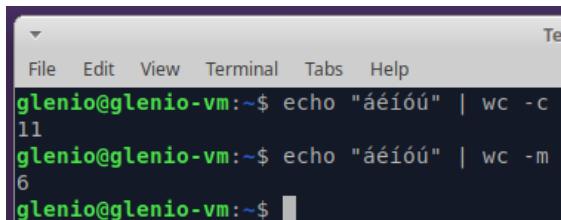
```
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ wc -w cidades.txt
40 cidades.txt
glenio@glenio-vm:~$
```

4.58: Contando o Número de Bytes



```
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ wc -c cidades.txt
196 cidades.txt
glenio@glenio-vm:~$
```

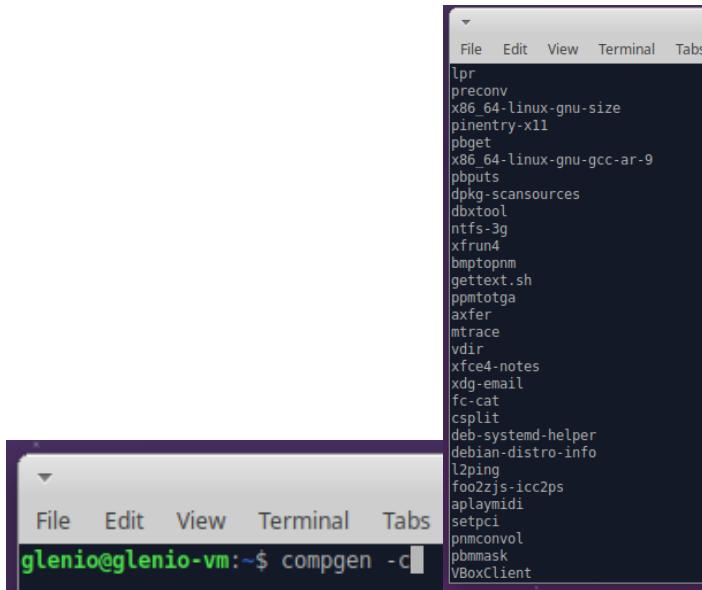
4.59: Contando o Número de Bytes e Caracteres



```
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ echo "áéíóú" | wc -c
11
glenio@glenio-vm:~$ echo "áéíóú" | wc -m
6
glenio@glenio-vm:~$
```

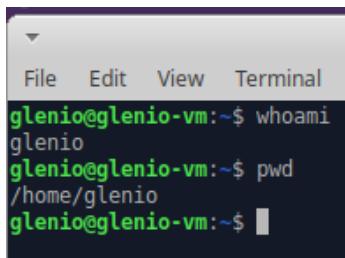
Capítulo 5 : Comandos de Sistema

5.1: Opções Múltiplas



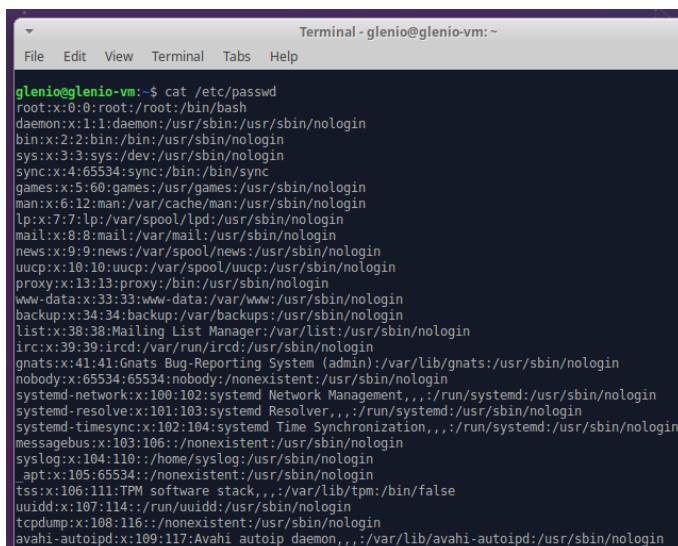
```
lpr
preconv
x86_64-linux-gnu-size
pinentry-x11
pbget
x86_64-linux-gnu-gcc-ar-9
pbput
dpkg-scansources
dbxtool
ntfs-3g
xfrun4
bmptopnm
gettext.sh
ppmtotga
axfer
mtrace
vdir
xfce4-notes
xdg-email
fc-cat
csplit
deb-systemd-helper
debian-distro-info
l2ping
foo2zjs-icc2ps
aplaymidi
setpci
pnmonconv
pbmask
VBoxClient
```

5.2: Comando whoami e pwd



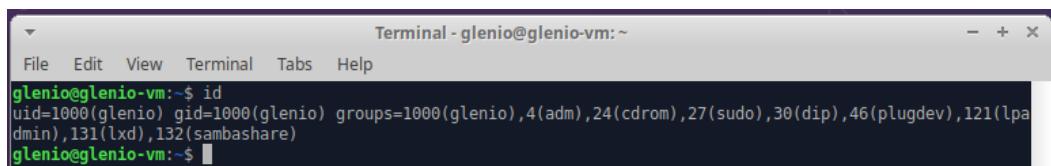
```
glenio@glenio-vm:~$ whoami
glenio
glenio@glenio-vm:~$ pwd
/home/glenio
glenio@glenio-vm:~$
```

5.3: Arquivo passwd



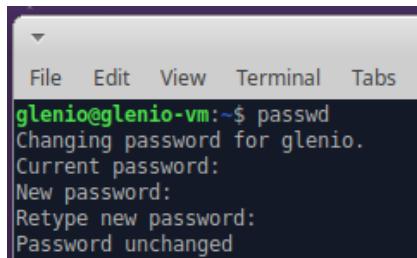
```
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
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
uuidd: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
```

5.5: Identificadores no Linux



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

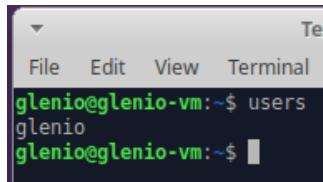
5.6: Alterando a Senha



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs  
glenio@glenio-vm:~$ passwd  
Changing password for glenio.  
Current password:  
New password:  
Retype new password:  
Password unchanged
```

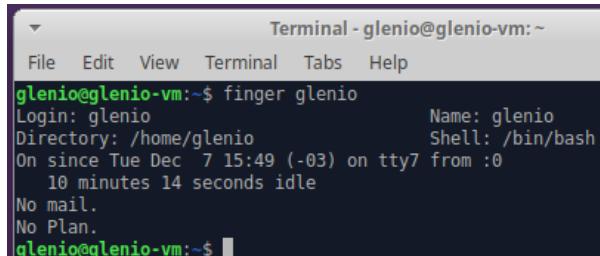
Não quis mudar minha senha

5.7: Usuários Logados



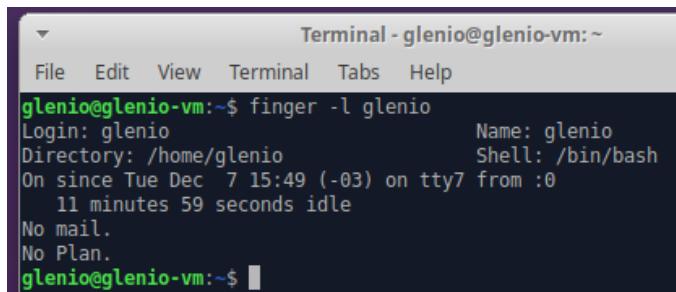
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ users  
glenio  
glenio@glenio-vm:~$
```

5.9: Comando finger



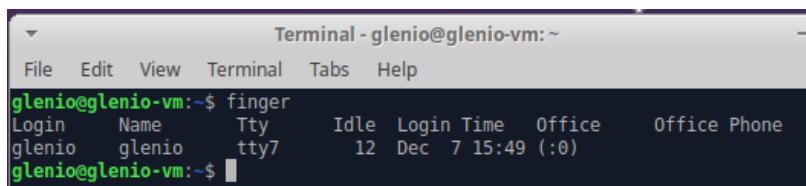
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ finger glenio  
Login: glenio          Name: glenio  
Directory: /home/glenio      Shell: /bin/bash  
On since Tue Dec  7 15:49 (-03) on tty7 from :0  
  10 minutes 14 seconds idle  
No mail.  
No Plan.  
glenio@glenio-vm:~$
```

5.10: Comando finger -l



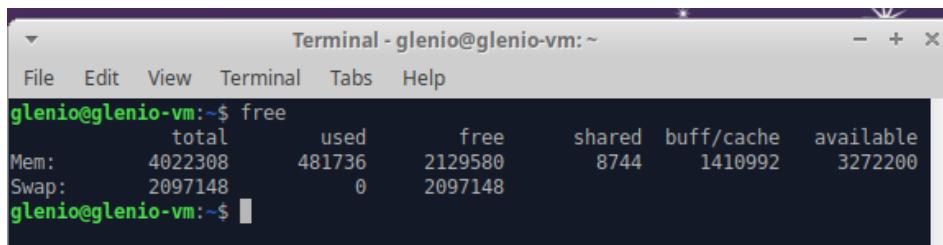
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ finger -l glenio  
Login: glenio          Name: glenio  
Directory: /home/glenio      Shell: /bin/bash  
On since Tue Dec  7 15:49 (-03) on tty7 from :0  
  11 minutes 59 seconds idle  
No mail.  
No Plan.  
glenio@glenio-vm:~$
```

5.11: Comando finger no Linux



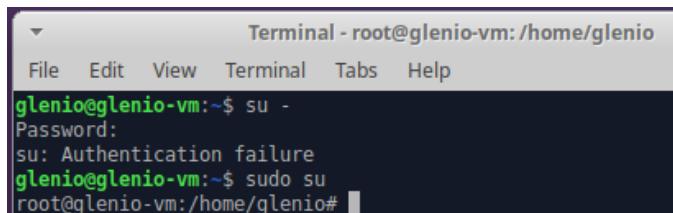
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ finger  
Login Name Tty Idle Login Time Office Office Phone  
glenio glenio tty7 12 Dec 7 15:49 (:0)  
glenio@glenio-vm:~$
```

5.12: Comando free



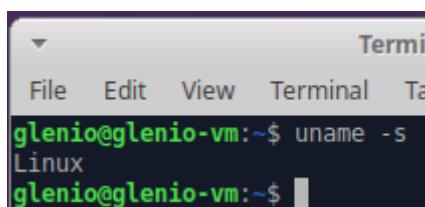
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ free  
total used free shared buff/cache available  
Mem: 4022308 481736 2129580 8744 1410992 3272200  
Swap: 2097148 0 2097148  
glenio@glenio-vm:~$
```

5.14: Logar como Super Usuário



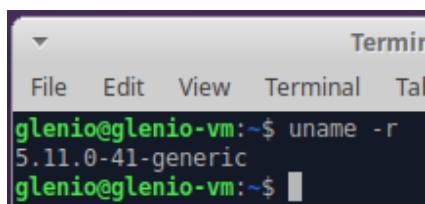
```
Terminal - root@glenio-vm: /home/glenio  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ su -  
Password:  
su: Authentication failure  
glenio@glenio-vm:~$ sudo su  
root@glenio-vm:/home/glenio#
```

5.15: Verificar Informações sobre o Linux



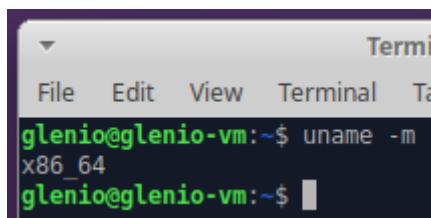
```
Terminal - Termi  
File Edit View Terminal Ta  
glenio@glenio-vm:~$ uname -s  
Linux  
glenio@glenio-vm:~$
```

5.17: Verificar sua Versão do kernel



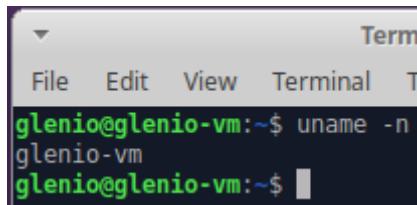
```
Terminal - Termir  
File Edit View Terminal Ta  
glenio@glenio-vm:~$ uname -r  
5.11.0-41-generic  
glenio@glenio-vm:~$
```

5.18: Verificando a Plataforma



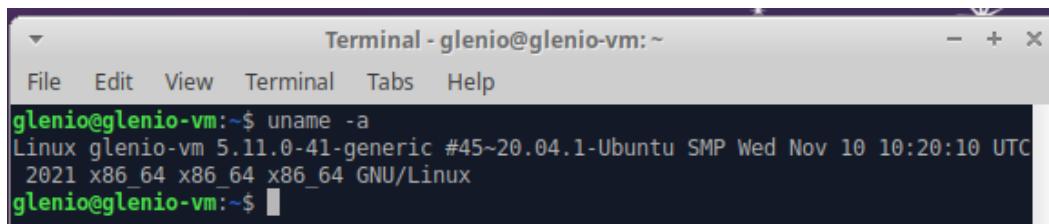
```
Terminal  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ uname -m  
x86_64  
glenio@glenio-vm:~$
```

5.19: Verificar o Nome de sua Máquina



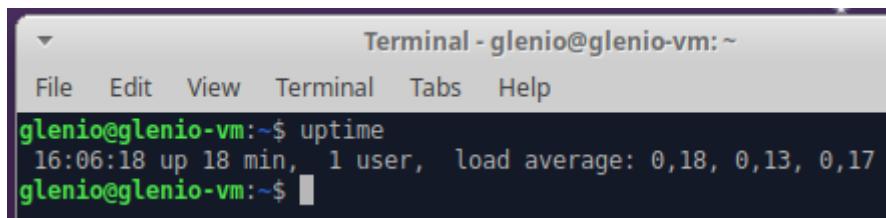
```
Terminal  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ uname -n  
glenio-vm  
glenio@glenio-vm:~$
```

5.20: Apresenta todas as informações sobre seu sistema operacional



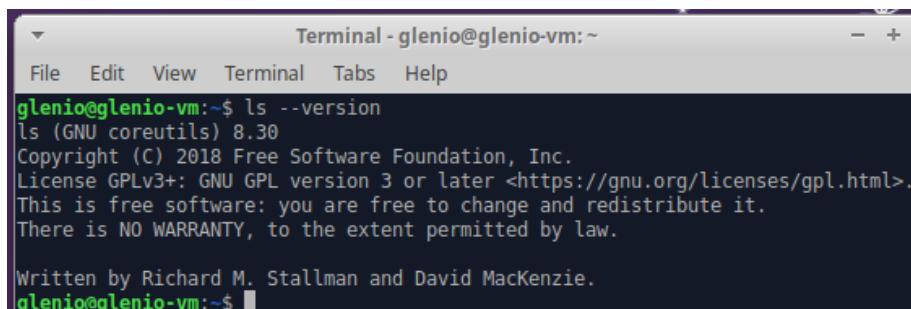
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ uname -a  
Linux glenio-vm 5.11.0-41-generic #45~20.04.1-Ubuntu SMP Wed Nov 10 10:20:10 UTC  
2021 x86_64 x86_64 x86_64 GNU/Linux  
glenio@glenio-vm:~$
```

5.21: Tempo de Funcionamento



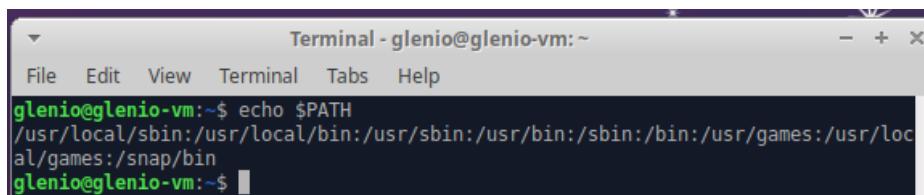
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ uptime  
16:06:18 up 18 min, 1 user, load average: 0,18, 0,13, 0,17  
glenio@glenio-vm:~$
```

5.22: Versão de um comando



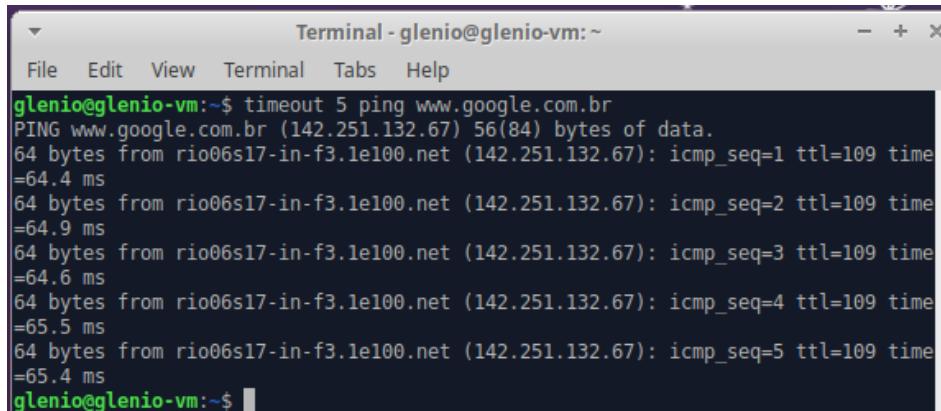
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ls --version  
ls (GNU coreutils) 8.30  
Copyright (C) 2018 Free Software Foundation, Inc.  
License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.  
This is free software: you are free to change and redistribute it.  
There is NO WARRANTY, to the extent permitted by law.  
Written by Richard M. Stallman and David MacKenzie.  
glenio@glenio-vm:~$
```

5.24: Variável PATH



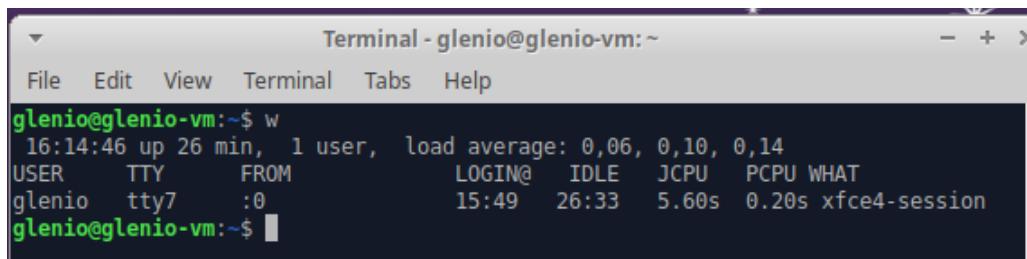
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ echo $PATH  
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/usr/games:/usr/local/games:/snap/bin  
glenio@glenio-vm:~$
```

5.25: Comando timeout



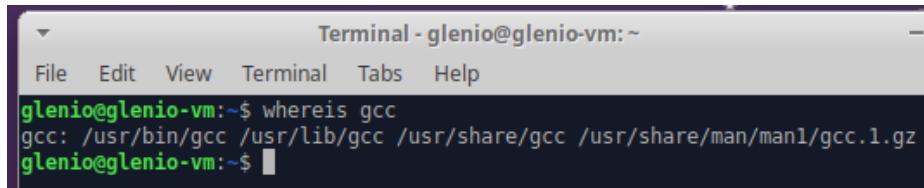
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ timeout 5 ping www.google.com.br  
PING www.google.com.br (142.251.132.67) 56(84) bytes of data.  
64 bytes from rio06s17-in-f3.1e100.net (142.251.132.67): icmp_seq=1 ttl=109 time  
=64.4 ms  
64 bytes from rio06s17-in-f3.1e100.net (142.251.132.67): icmp_seq=2 ttl=109 time  
=64.9 ms  
64 bytes from rio06s17-in-f3.1e100.net (142.251.132.67): icmp_seq=3 ttl=109 time  
=64.6 ms  
64 bytes from rio06s17-in-f3.1e100.net (142.251.132.67): icmp_seq=4 ttl=109 time  
=65.5 ms  
64 bytes from rio06s17-in-f3.1e100.net (142.251.132.67): icmp_seq=5 ttl=109 time  
=65.4 ms  
glenio@glenio-vm:~$
```

5.26: Comando w



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ w  
16:14:46 up 26 min, 1 user, load average: 0,06, 0,10, 0,14  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
glenio tty7 :0 15:49 26:33 5.60s 0.20s xfce4-session  
glenio@glenio-vm:~$
```

5.27: Comando whereis



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ whereis gcc  
gcc: /usr/bin/gcc /usr/lib/gcc /usr/share/gcc /usr/share/man/man1/gcc.1.gz  
glenio@glenio-vm:~$
```

5.28: Comando locate

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ 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/include/rpcsvc/yppasswd.h  
/usr/include/rpcsvc/yppasswd.x  
/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/cpasswd  
/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
```

5.29: Comando which

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs  
glenio@glenio-vm:~$ which ls  
/usr/bin/ls  
glenio@glenio-vm:~$ which gcc  
/usr/bin/gcc  
glenio@glenio-vm:~$
```

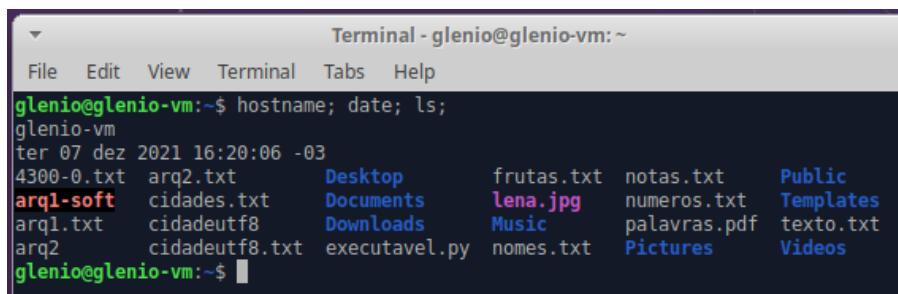
5.30: Comando whatis

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ whatis clear  
clear (1)           - clear the terminal screen  
glenio@glenio-vm:~$ whatis ps  
ps (1)              - report a snapshot of the current processes.  
glenio@glenio-vm:~$
```

5.31: Comando who

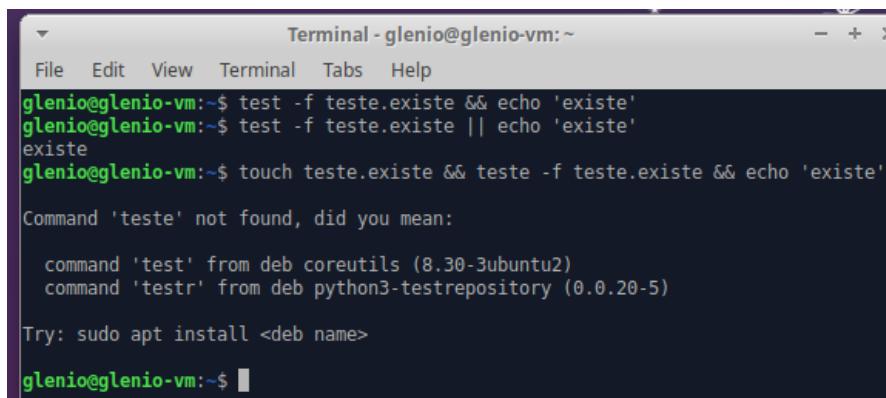
```
Terminal - glenio@  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ who  
glenio  tty7  2021-12-07 15:49 (:0)  
glenio@glenio-vm:~$
```

5.32: Rodando Múltiplos Comandos



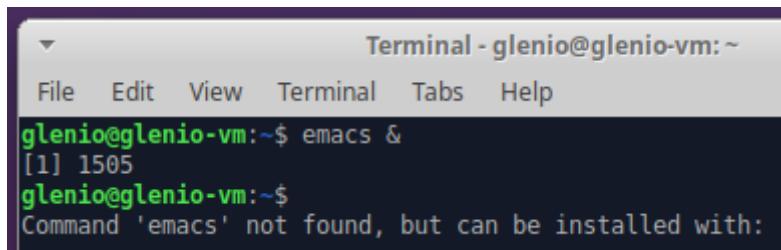
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ hostname; date; ls;  
glenio-vm  
ter 07 dez 2021 16:20:06 -03  
4300-0.txt arq2.txt Desktop frutas.txt notas.txt Public  
arql-soft cidades.txt Documents lena.jpg numeros.txt Templates  
arql1.txt cidadeutf8 Downloads Music palavras.pdf texto.txt  
arq2 cidadeutf8.txt executavel.py nomes.txt Pictures Videos  
glenio@glenio-vm:~$
```

5.33: Rodando Múltiplos Comandos Condicionados



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ test -f teste.existe && echo 'existe'  
glenio@glenio-vm:~$ test -f teste.existe || echo 'existe'  
existe  
glenio@glenio-vm:~$ touch teste.existe && teste -f teste.existe && echo 'existe'  
Command 'teste' not found, did you mean:  
  command 'test' from deb coreutils (8.30-3ubuntu2)  
  command 'testr' from deb python3-testrepository (0.0.20-5)  
Try: sudo apt install <deb name>  
glenio@glenio-vm:~$
```

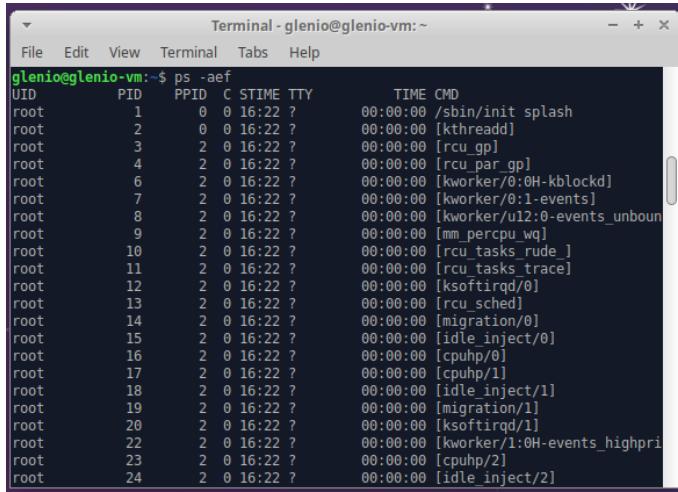
5.34: Rodando Comando em Background



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ emacs &  
[1] 1505  
glenio@glenio-vm:~$  
Command 'emacs' not found, but can be installed with:
```

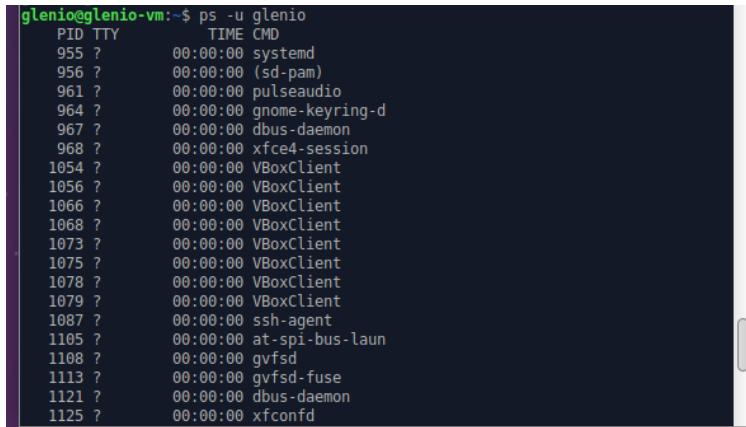
Capítulo 6 : Gerenciamento de Processos

6.1: Todos os Processos em Execução



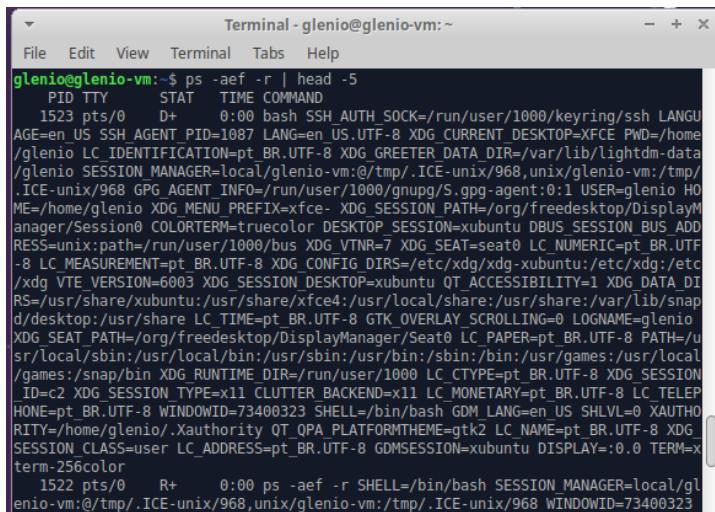
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ps -ae  
UID      PID  PPID C STIME TTY          TIME CMD  
root      1      0  0 16:22 ?        00:00:00 /sbin/init splash  
root      2      0  0 16:22 ?        00:00:00 [kthreadd]  
root      3      2  0 16:22 ?        00:00:00 [rcu_gp]  
root      4      2  0 16:22 ?        00:00:00 [rcu_par_gp]  
root      6      2  0 16:22 ?        00:00:00 [kworker/0:0H-kblockd]  
root      7      2  0 16:22 ?        00:00:00 [kworker/0:1-events]  
root      8      2  0 16:22 ?        00:00:00 [kworker/u12:0-events_unbound]  
root      9      2  0 16:22 ?        00:00:00 [mm_percpu_wq]  
root     10      2  0 16:22 ?        00:00:00 [rcu_tasks_rude]  
root     11      2  0 16:22 ?        00:00:00 [rcu_tasks_trace]  
root     12      2  0 16:22 ?        00:00:00 [ksoftirqd/0]  
root     13      2  0 16:22 ?        00:00:00 [rcu_sched]  
root     14      2  0 16:22 ?        00:00:00 [migration/0]  
root     15      2  0 16:22 ?        00:00:00 [idle_inject/0]  
root     16      2  0 16:22 ?        00:00:00 [cpuhp/0]  
root     17      2  0 16:22 ?        00:00:00 [cpuhp/1]  
root     18      2  0 16:22 ?        00:00:00 [idle_inject/1]  
root     19      2  0 16:22 ?        00:00:00 [migration/1]  
root     20      2  0 16:22 ?        00:00:00 [ksoftirqd/1]  
root     22      2  0 16:22 ?        00:00:00 [kworker/1:0H-events_highpri]  
root     23      2  0 16:22 ?        00:00:00 [cpuhp/2]  
root     24      2  0 16:22 ?        00:00:00 [idle_inject/2]
```

6.2: Todos os Processos em Execução de um Usuário Específico



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ps -u glenio  
PID TTY      TIME CMD  
955 ?    00:00:00 systemd  
956 ?    00:00:00 (sd-pam)  
961 ?    00:00:00 pulseaudio  
964 ?    00:00:00 gnome-keyring-d  
967 ?    00:00:00 dbus-daemon  
968 ?    00:00:00 xfce4-session  
1054 ?    00:00:00 VBoxClient  
1056 ?    00:00:00 VBoxClient  
1066 ?    00:00:00 VBoxClient  
1068 ?    00:00:00 VBoxClient  
1073 ?    00:00:00 VBoxClient  
1075 ?    00:00:00 VBoxClient  
1078 ?    00:00:00 VBoxClient  
1079 ?    00:00:00 VBoxClient  
1087 ?    00:00:00 ssh-agent  
1105 ?    00:00:00 at-spi-bus-laun  
1108 ?    00:00:00 gvfsd  
1113 ?    00:00:00 gvfsd-fuse  
1121 ?    00:00:00 dbus-daemon  
1125 ?    00:00:00 xfconfd
```

6.3: Processos que Mais Consomem CPU



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ps -af -r | head -5  
PID TTY      STAT TIME COMMAND  
1523 pts/0    R+    0:00 bash SSH_AUTH_SOCK=/run/user/1000/keyring/ssh LANGU  
AGE=en_US SSH_AGENT_PID=1087 LANG=en_US.UTF-8 XDG_CURRENT_DESKTOP=Xfce PWD=/home  
/glenio LC_IDENTIFICATION=pt_BR.UTF-8 XDG_GREETER_DATA_DIR=/var/lib/lightdm-data  
/glenio SESSION_MANAGER=local/glenio-vm:@tmp/.ICE-unix/968,unix/glenio-vm:/tmp/  
.ICE-unix/968 GPG_AGENT_INFO=/run/user/1000/gnupg/S.gpg-agent:0:1 USER=glenio HO  
ME=/home/glenio XDG_MENU_PREFIX=xfce- XDG_SESSION_PATH=/org/freedesktop/DisplayM  
anager/DesktopSession0 COLORTERM=truecolor DESKTOP_SESSION=xubuntu DBUS_SESSION_BUS_ADD  
RESS=unix:path=/run/user/1000/bus XDG_VTNR=7 XDG_SEAT=seat0 LC_NUMERIC=pt_BR.UTF  
-8 LC_MEASUREMENT=pt_BR.UTF-8 XDG_CONFIG_DIRS=/etc/xdg/xdg-xubuntu:/etc/xdg/etc  
/xdg VTE_VERSION=6003 XDG_SESSION_DESKTOP=xubuntu QT_ACCESSIBILITY=1 XDG_DATA_DI  
RS=/usr/share/xubuntu:/usr/share/xfce4:/usr/local/share:/usr/share:/var/lib/snap  
d/desktop:/usr/share LC_TIME=pt_BR.UTF-8 GTK_OVERLAY_SCROLLING=0 LOGNAME=glenio  
XDG_SEAT_PATH=/org/freedesktop/DisplayManager/Seat0 LC_PAPER=pt_BR.UTF-8 PATH=u  
sr/local/sbin:/usr/local/bin:/usr/bin:/sbin:/bin:/usr/games:/usr/local  
/games:/snap/bin XDG_RUNTIME_DIR=/run/user/1000 LC_CTYPE=pt_BR.UTF-8 XDG_SESSION  
_ID=c2 XDG_SESSION_TYPE=x11 CLUTTER_BACKEND=x11 LC_MONETARY=pt_BR.UTF-8 LC_TELEP  
HONE=pt_BR.UTF-8 WINDOWID=73400323 SHELL=/bin/bash GDM_LANG=en_US SHLVL=0 XAUTHO  
RITY=/home/glenio/.xauthority QT_QPA_PLATFORMTHEME=gtk2 LC_NAME=pt_BR.UTF-8 XDG  
SESSION_CLASS=user LC_ADDRESS=pt_BR.UTF-8 GDMSESSION=xubuntu DISPLAY=:0.0 TERM=x  
term-256color  
1522 pts/0    R+    0:00 ps -af -r SHELL=/bin/bash SESSION_MANAGER=local/g  
lenio-vm:@tmp/.ICE-unix/968,unix/glenio-vm:/tmp/.ICE-unix/968 WINDOWID=73400323
```

6.4: Processos que Mais Consomem CPU

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ps -afe | head -5  
UID      PID  PPID  C STIME TTY          TIME CMD  
root      1      0  0 16:22 ?        00:00:00 /sbin/init splash  
root      -      -  0 16:22 -        00:00:00 -  
root      2      0  0 16:22 ?        00:00:00 [kthreadd]  
root      -      -  0 16:22 -        00:00:00 -  
glenio@glenio-vm:~$
```

6.5: Obtendo Informações de um Processo Específico

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ps -afe | grep firefox  
glenio      1532    1472  0 16:34 pts/0    00:00:00 grep --color=auto firefox  
glenio@glenio-vm:~$
```

6.6: Obtendo a Lista de Processos em forma de Árvore

```
glenio@glenio-vm:~$ 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  
|   getty  
|   avahi-daemon—avahi-daemon  
|   blueman-tray—2*[{blueman-tray}]  
|   colord—2*[{colord}]  
|   cron  
|   cups-browsed—2*[{cups-browsed}]
```

6.8: Controlando Processos

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
top - 16:36:18 up 13 min,  1 user,  load average: 0,00, 0,02, 0,04  
Tasks: 197 total,   1 running, 196 sleeping,   0 stopped,   0 zombie  
%Cpu(s): 0,0 us, 0,0 sy, 0,0 ni,100,0 id, 0,0 wa, 0,0 hi, 0,0 si, 0,0 st  
MiB Mem : 3928,0 total, 2687,1 free,   463,6 used,   777,3 buff/cache  
MiB Swap: 2048,0 total, 2048,0 free, 0,0 used. 3231,9 avail Mem  

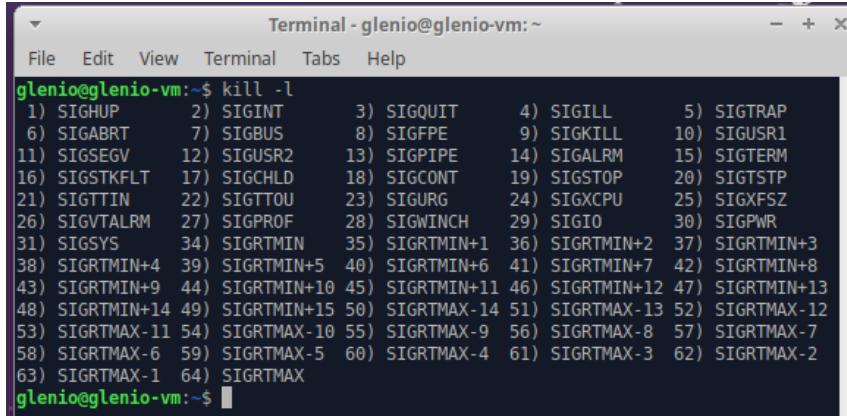

| PID | USER | PR  | NI  | VIRT    | RES    | SHR   | S | %CPU | %MEM | TIME+   | COMMAND  |
|-----|------|-----|-----|---------|--------|-------|---|------|------|---------|----------|
| 813 | root | 20  | 0   | 1471448 | 101584 | 38668 | S | 1,0  | 2,5  | 0:02.68 | Xorg     |
| 1   | root | 20  | 0   | 167324  | 11228  | 8320  | S | 0,0  | 0,3  | 0:00.62 | systemd  |
| 2   | root | 20  | 0   | 0       | 0      | 0     | S | 0,0  | 0,0  | 0:00.00 | kthreadd |
| 3   | root | 0   | -20 | 0       | 0      | 0     | I | 0,0  | 0,0  | 0:00.00 | rcu_gp   |
| 4   | root | 0   | -20 | 0       | 0      | 0     | I | 0,0  | 0,0  | 0:00.00 | rcu_par+ |
| 6   | root | 0   | -20 | 0       | 0      | 0     | I | 0,0  | 0,0  | 0:00.00 | kworker+ |
| 7   | root | 20  | 0   | 0       | 0      | 0     | I | 0,0  | 0,0  | 0:00.06 | kworker+ |
| 8   | root | 20  | 0   | 0       | 0      | 0     | I | 0,0  | 0,0  | 0:00.07 | kworker+ |
| 9   | root | 0   | -20 | 0       | 0      | 0     | I | 0,0  | 0,0  | 0:00.00 | mm_perc+ |
| 10  | root | 20  | 0   | 0       | 0      | 0     | S | 0,0  | 0,0  | 0:00.00 | rcu_tas+ |
| 11  | root | 20  | 0   | 0       | 0      | 0     | S | 0,0  | 0,0  | 0:00.00 | rcu_tas+ |
| 12  | root | 20  | 0   | 0       | 0      | 0     | S | 0,0  | 0,0  | 0:00.00 | ksoftir+ |
| 13  | root | 20  | 0   | 0       | 0      | 0     | I | 0,0  | 0,0  | 0:00.13 | rcu_sch+ |
| 14  | root | rt  | 0   | 0       | 0      | 0     | S | 0,0  | 0,0  | 0:00.00 | migrati+ |
| 15  | root | -51 | 0   | 0       | 0      | 0     | S | 0,0  | 0,0  | 0:00.00 | idle_in+ |
| 16  | root | 20  | 0   | 0       | 0      | 0     | S | 0,0  | 0,0  | 0:00.00 | cpuhp/0  |
| 17  | root | 20  | 0   | 0       | 0      | 0     | S | 0,0  | 0,0  | 0:00.00 | cpuhp/1  |



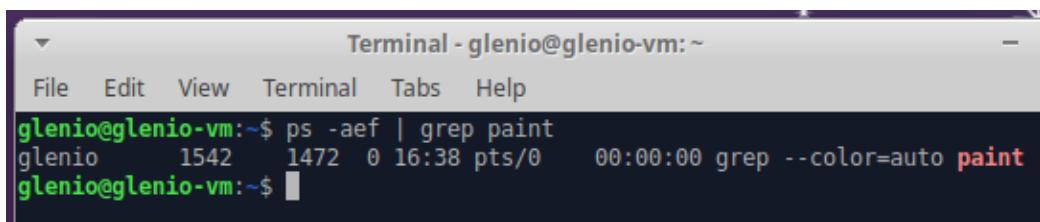
top -d 1


```

6.9 e 6.10: Comando kill

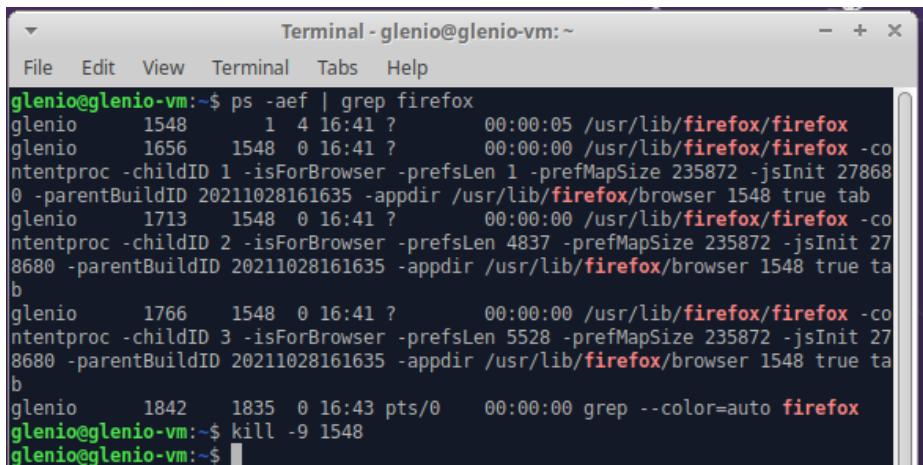


```
Terminal - glenio@glenio-vm:~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ kill -l
 1) SIGHUP      2) SIGINT      3) SIGQUIT      4) SIGILL      5) SIGTRAP
 6) SIGABRT     7) SIGBUS      8) SIGFPE       9) SIGKILL     10) SIGUSR1
11) SIGSEGV     12) SIGUSR2     13) SIGPIPE     14) SIGALRM     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
glenio@glenio-vm:~$
```



```
Terminal - glenio@glenio-vm:~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ ps -aef | grep paint
glenio      1542     1472  0 16:38 pts/0    00:00:00 grep --color=auto paint
glenio@glenio-vm:~$
```

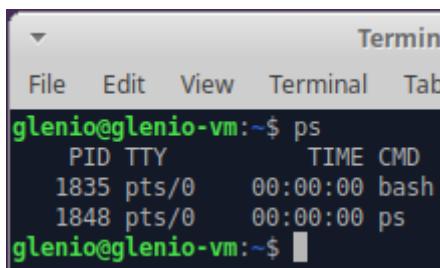
6.11: Matando o Processo Firefox



```
Terminal - glenio@glenio-vm:~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ ps -aef | grep firefox
glenio      1548      1  4 16:41 ?        00:00:05 /usr/lib/firefox/firefox
glenio      1656    1548  0 16:41 ?        00:00:00 /usr/lib/firefox/firefox -co
ntentproc -childID 1 -isForBrowser -prefsLen 1 -prefMapSize 235872 -jsInit 27868
0 -parentBuildID 20211028161635 -appdir /usr/lib/firefox/browser 1548 true tab
glenio      1713    1548  0 16:41 ?        00:00:00 /usr/lib/firefox/firefox -co
ntentproc -childID 2 -isForBrowser -prefsLen 4837 -prefMapSize 235872 -jsInit 27
8680 -parentBuildID 20211028161635 -appdir /usr/lib/firefox/browser 1548 true ta
b
glenio      1766    1548  0 16:41 ?        00:00:00 /usr/lib/firefox/firefox -co
ntentproc -childID 3 -isForBrowser -prefsLen 5528 -prefMapSize 235872 -jsInit 27
8680 -parentBuildID 20211028161635 -appdir /usr/lib/firefox/browser 1548 true ta
b
glenio      1842    1835  0 16:43 pts/0    00:00:00 grep --color=auto firefox
glenio@glenio-vm:~$ kill -9 1548
glenio@glenio-vm:~$
```

6.13 ao 6.30: Controlando Processos

6.13:



```
Terminal - glenio@glenio-vm:~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ ps
 PID TTY          TIME CMD
 1835 pts/0        00:00:00 bash
 1848 pts/0        00:00:00 ps
glenio@glenio-vm:~$
```

6.14:

```
Terminal - glenio@glenio-vm
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ ps -u glenio
PID TTY      TIME CMD
 955 ?    00:00:00 systemd
 956 ?    00:00:00 (sd-pam)
 961 ?    00:00:00 pulseaudio
 964 ?    00:00:00 gnome-keyring-d
 967 ?    00:00:00 dbus-daemon
 968 ?    00:00:00 xfce4-session
1054 ?    00:00:00 VBoxClient
1056 ?    00:00:00 VBoxClient
1066 ?    00:00:00 VBoxClient
1068 ?    00:00:00 VBoxClient
1073 ?    00:00:00 VBoxClient
1075 ?    00:00:01 VBoxClient
1078 ?    00:00:00 VBoxClient
1079 ?    00:00:00 VBoxClient
1087 ?    00:00:00 ssh-agent
1105 ?    00:00:00 at-spi-bus-laun
1108 ?    00:00:00 gvfsd
1113 ?    00:00:00 gvfsd-fuse
1121 ?    00:00:00 dbus-daemon
1125 ?    00:00:00 xfconfd
```

6.15:

```
Terminal - glenio@glenio-vm
File Edit View Terminal
glenio@glenio-vm:~$ top &
[1] 1852
glenio@glenio-vm:~$
```

6.16:

```
Terminal - glenio
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ jobs -l
[1]+ 1852 Stopped (signal)          top
glenio@glenio-vm:~$
```

6.17:

```
Terminal - glenio
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ jobs -l
[1]+ 1852 Stopped (signal)          top
glenio@glenio-vm:~$ kill -9 1852
glenio@glenio-vm:~$ jobs -l
[1]+ 1852 Killed                  top
glenio@glenio-vm:~$
```

6.19:

Terminal - glenio@glenio-vm:~

```
File Edit View Terminal Tabs Help
1212 ? 00:00:00 xfce4-notifyd
1229 ? 00:00:00 indicator-messa
1234 ? 00:00:00 nm-applet
1239 ? 00:00:00 update-notifier
1243 ? 00:00:00 xiccd
1254 ? 00:00:00 blueman-applet
1264 ? 00:00:00 xfce4-power-man
1269 ? 00:00:00 polkit-gnome-au
1278 ? 00:00:00 applet.py
1313 ? 00:00:00 gvfs-udisks2-vo
1318 ? 00:00:00 gvfs-goa-volume
1322 ? 00:00:00 gvfs-ghotot2-vo
1326 ? 00:00:00 gvfs-ftp-volume
1334 ? 00:00:00 gvfs-afc-volume
1353 ? 00:00:00 blueman-tray
1354 ? 00:00:00 gvfsd-trash
1356 ? 00:00:00 obexd
1357 ? 00:00:00 gvfsd-metadata
1360 ? 00:00:00 xfce4-terminal
1835 pts/0 00:00:00 bash
1853 pts/0 00:00:00 top
1862 pts/1 00:00:00 bash
1868 pts/1 00:00:00 ps
glenio@glenio-vm:~$
```

Terminal - glenio@glenio-vm:~

```
File Edit View Terminal Tabs Help
MiB Swap: 2048,0 total, 2048,0 free, 0,0 used. 3221,8 avail Mem
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
13 root 20 0 0 0 0 I 0,3 0,0 0:00.25 rcu sch+
813 root 20 0 1471448 101748 38820 S 0,3 2,5 0:07.33 Xorg
1144 glenio 20 0 1579460 99348 76580 S 0,3 2,5 0:01.71 xfwm4
1254 glenio 20 0 446916 45792 27998 S 0,3 1,1 0:00.27 blueman+
1830 glenio 20 0 400356 41084 30680 S 0,3 1,0 0:01.44 xfce4-t+
1853 glenio 20 0 22196 3856 3216 R 0,3 0,1 0:00.10 top
1 root 20 0 167324 11228 8320 S 0,0 0,3 0:00.62 systemd
2 root 20 0 0 0 0 S 0,0 0,0 0:00.00 kthreadd
3 root 0 -20 0 0 0 S 0,0 0,0 0:00.00 rCU_gp
4 root 0 -20 0 0 0 I 0,0 0,0 0:00.00 rCU_par+
6 root 0 -20 0 0 0 I 0,0 0,0 0:00.00 kworker+
7 root 20 0 0 0 0 I 0,0 0,0 0:00.00 kworker+
9 root 0 -20 0 0 0 I 0,0 0,0 0:00.00 mm_perc+
10 root 20 0 0 0 0 S 0,0 0,0 0:00.00 rCU_tas+
11 root 20 0 0 0 0 S 0,0 0,0 0:00.00 rCU_tas+
12 root 20 0 0 0 0 I 0,0 0,0 0:00.00 ksftfir+
14 root rt 0 0 0 0 S 0,0 0,0 0:00.00 migrati+
15 root -51 0 0 0 0 S 0,0 0,0 0:00.00 idle_in+
[1]+ Stopped top
glenio@glenio-vm:~$ jobs -l
[1]+ 1853 Stopped (signal) top
[2]+ 1853 Stopped (signal) top
glenio@glenio-vm:~$
```

Terminal - glenio@glenio-vm:~

```
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ kill -s SIGSTOP 1853
glenio@glenio-vm:~$
```

6.20:

Terminal - glenio@glenio-vm:~

```
File Edit View Terminal Tabs Help
1239 ? 00:00:00 update-notifier
1243 ? 00:00:00 xiccd
1254 ? 00:00:00 blueman-applet
1264 ? 00:00:00 xfce4-power-man
1269 ? 00:00:00 polkit-gnome-au
1278 ? 00:00:00 applet.py
1313 ? 00:00:00 gvfs-udisks2-vo
1318 ? 00:00:00 gvfs-goa-volume
1322 ? 00:00:00 gvfs-ghotot2-vo
1326 ? 00:00:00 gvfs-ftp-volume
1334 ? 00:00:00 gvfs-afc-volume
1353 ? 00:00:00 blueman-tray
1354 ? 00:00:00 gvfsd-trash
1356 ? 00:00:00 obexd
1380 ? 00:00:00 gvfsd-metadata
1388 ? 00:00:00 xfce4-terminal
1830 ? 00:00:01 xfce4-terminal
1835 pts/0 00:00:00 bash
1853 pts/0 00:00:00 top
1862 pts/1 00:00:00 bash
1877 pts/2 00:00:00 bash
1892 ? 00:00:00 bash <defunct>
1901 pts/0 00:00:00 top
1902 pts/1 00:00:00 ps
glenio@glenio-vm:~$
```

Terminal - glenio@glenio-vm:~

```
File Edit View Terminal Tabs Help
1193 glenio 20 0 519188 41184 33628 S 0,3 1,0 0:01.01 panel-1+
1830 glenio 20 0 400356 41240 30680 S 0,3 1,0 0:02.00 xfce4-t+
1 root 20 0 167324 11228 8320 S 0,0 0,3 0:00.62 systemd
2 root 20 0 0 0 0 S 0,0 0,0 0:00.00 kthreadd
3 root 0 -20 0 0 0 I 0,0 0,0 0:00.00 rCU_gp
4 root 0 -20 0 0 0 I 0,0 0,0 0:00.00 rCU_par+
6 root 0 -20 0 0 0 I 0,0 0,0 0:00.00 kworker+
7 root 20 0 0 0 0 I 0,0 0,0 0:00.09 kworker+
9 root 0 -20 0 0 0 I 0,0 0,0 0:00.00 mm_perc+
10 root 20 0 0 0 0 S 0,0 0,0 0:00.00 rCU_tas+
11 root 20 0 0 0 0 S 0,0 0,0 0:00.00 rCU_tas+
12 root 20 0 0 0 0 I 0,0 0,0 0:00.26 rCU_sch+
13 root 20 0 0 0 0 S 0,0 0,0 0:00.00 migrati+
14 root rt 0 0 0 0 S 0,0 0,0 0:00.00 idle_in+
15 root -51 0 0 0 0 S 0,0 0,0 0:00.00 idle_in+
[2]+ Stopped top
glenio@glenio-vm:~$ jobs -l
[1]- 1853 Stopped (signal) top
[2]+ 1901 Stopped (signal) top
[1]+ 1901 Stopped (signal) top
[2]+ 1901 Stopped (signal) top
glenio@glenio-vm:~$
```

Terminal - glenio@glenio-vm:~

```
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ kill -s SIGSTOP 1901
glenio@glenio-vm:~$ kill -s SIGCONT 1901
glenio@glenio-vm:~$
```

6.21:

Terminal - glenio@glenio-vm:~

```
File Edit View Terminal Tabs Help
%Cpu(s): 0,0 us, 0,1 sy, 0,0 ni, 99,9 id, 0,0 wa, 0,0 hi, 0,0 si, 0,0 st
MiB Mem : 3928,0 total, 2529,7 free, 470,1 used, 928,2 buff/cache
MiB Swap: 2048,0 total, 2048,0 free, 0,0 used. 3223,7 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
212	root	20	0	0	0	0	I	0,3	0,0	0:00.07	kworker+
1075	glenio	20	0	231240	2732	2364	S	0,3	0,1	0:02.38	VBoxCli+
1830	glenio	20	0	400228	41148	30680	S	0,3	1,0	0:03.23	xfce4-t+
1918	glenio	20	0	22196	3876	3232	R	0,3	0,1	0:00.10	top
1	root	20	0	167324	11228	8320	S	0,0	0,3	0:00.63	systemd
2	root	20	0	0	0	0	S	0,0	0,0	0:00.00	kthreadd
3	root	0	-20	0	0	0	I	0,0	0,0	0:00.00	rCU_gp
4	root	0	-20	0	0	0	I	0,0	0,0	0:00.00	rCU_par+
6	root	0	-20	0	0	0	I	0,0	0,0	0:00.00	kworker+
7	root	20	0	0	0	0	I	0,0	0,0	0:00.09	kworker+
9	root	0	-20	0	0	0	I	0,0	0,0	0:00.00	mm_perc+
10	root	20	0	0	0	0	S	0,0	0,0	0:00.00	rCU_tas+
11	root	20	0	0	0	0	S	0,0	0,0	0:00.00	rCU_tas+
12	root	20	0	0	0	0	S	0,0	0,0	0:00.00	ksftfir+
13	root	20	0	0	0	0	I	0,0	0,0	0:00.33	rCU_sch+
14	root	rt	0	0	0	0	S	0,0	0,0	0:00.00	migrati+
15	root	-51	0	0	0	0	S	0,0	0,0	0:00.00	idle_in+

Killed
glenio@glenio-vm:~\$

Terminal - glenio@glenio-vm:~

```
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ killall -9 top
glenio@glenio-vm:~$
```

6.22:

```

glenio@glenio-vm:~$ ps aux
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START  TIME COMMAND
root        1  0.0  0.2 167324 11228 ?        Ss  16:22  0:00 /sbin/init sp
root        2  0.0  0.0     0   0 ?        S   16:22  0:00 [kthreadd]
root        3  0.0  0.0     0   0 ?        I<  16:22  0:00 [rcu_gp]
root        4  0.0  0.0     0   0 ?        I<  16:22  0:00 [rcu_par_gp]
root        6  0.0  0.0     0   0 ?        I<  16:22  0:00 [kworker/0:0H]
root        7  0.0  0.0     0   0 ?        I   16:22  0:00 [kworker/0:1-]
root        9  0.0  0.0     0   0 ?        I<  16:22  0:00 [mm_percpu_wq]
root       10  0.0  0.0     0   0 ?        S   16:22  0:00 [rcu_tasks_ru
root       11  0.0  0.0     0   0 ?        S   16:22  0:00 [rcu_tasks_tr
root       12  0.0  0.0     0   0 ?        S   16:22  0:00 [ksoftirqd/0]
root       13  0.0  0.0     0   0 ?        I   16:22  0:00 [rcu_sched]
root       14  0.0  0.0     0   0 ?        S   16:22  0:00 [migration/0]
root       15  0.0  0.0     0   0 ?        S   16:22  0:00 [idle_inject/
root       16  0.0  0.0     0   0 ?        S   16:22  0:00 [cpuhp/0]
root       17  0.0  0.0     0   0 ?        S   16:22  0:00 [cpuhp/1]
root       18  0.0  0.0     0   0 ?        S   16:22  0:00 [idle_inject/
root       19  0.0  0.0     0   0 ?        S   16:22  0:00 [migration/1]
root       20  0.0  0.0     0   0 ?        S   16:22  0:00 [ksoftirqd/1]
root       22  0.0  0.0     0   0 ?        I<  16:22  0:00 [kworker/1:0H]
root       23  0.0  0.0     0   0 ?        S   16:22  0:00 [cpuhp/2]
root       24  0.0  0.0     0   0 ?        S   16:22  0:00 [idle_inject/

```

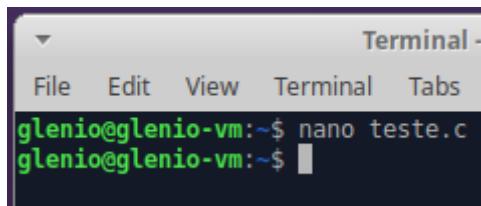
6.23

```

glenio@glenio-vm:~$ ps x --forest
PID TTY      STAT   TIME COMMAND
 968 ?        Ssl    0:00 xfce4-session
1087 ?        Ss    0:00  \_ /usr/bin/ssh-agent /usr/bin/im-launch startxfce
1144 ?        Sl    0:02  \_ xfwm4 --replace
1165 ?        Sl    0:00  \_ xfce4-panel
1181 ?        Sl    0:00  |  \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/_wrapp
1186 ?        Sl    0:00  |  \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/_wrapp
1187 ?        Sl    0:00  |  \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/_wrapp
1188 ?        Sl    0:00  |  \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/_wrapp
1189 ?        Sl    0:00  |  \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/_wrapp
1190 ?        Sl    0:00  |  \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/_wrapp
1193 ?        Sl    0:01  |  \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/_wrapp
1180 ?        Sl    0:00  \_ Thunar --daemon
1200 ?        Sl    0:01  \_ xfdesktop
1234 ?        Sl    0:00  \_ nm-applet
1239 ?        Sl    0:00  \_ update-notifier
1243 ?        Sl    0:00  \_ xiccd
1254 ?        Sl    0:00  \_ /usr/bin/python3 /usr/bin/blueman-applet
1269 ?        Sl    0:00  \_ /usr/lib/polkit-1-gnome/polkit-gnome-authent
1278 ?        S     0:00  \_ /usr/bin/python3 /usr/share/system-config-print
1830 ?        Sl    0:03 /usr/bin/xfce4-terminal

```

6.24:



```

GNU nano 4.8
#include <stdio.h>
int main(){
    while(1){}
}

```

6.25:

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ gcc -c teste.c  
glenio@glenio-vm:~$ gcc -o teste teste.o  
glenio@glenio-vm:~$ cp teste testel  
glenio@glenio-vm:~$ ls  
4300-0.txt  cidadeutf8    frutas.txt  palavras.pdf  teste.c  
arq1-soft  cidadeutf8.txt  lena.jpg    Pictures      teste.existe  
arq1.txt    Desktop        Music       Public       teste.o  
ard2        Documents      nomes.txt   Templates    texto.txt  
ard2.txt    Downloads      notas.txt  teste        Videos  
cidades.txt executavel.py numeros.txt testel  
glenio@glenio-vm:~$
```

6.26:

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ./teste &  
[1] 2004  
glenio@glenio-vm:~$ ./testel &  
[2] 2005  
glenio@glenio-vm:~$ ps  
  PID TTY      TIME CMD  
1862 pts/1    00:00:00 bash  
2004 pts/1    00:00:10 teste  
2005 pts/1    00:00:06 testel  
2006 pts/1    00:00:00 ps  
glenio@glenio-vm:~$ ps -l  
F S  UID     PID   PPID  C PRI  NI ADDR SZ WCHAN  TTY      TIME CMD  
0 S  1000   1862   1830  0 80    0 - 5339 do_wai pts/1    00:00:00 bash  
0 R  1000   2004   1862  99 80    0 - 591 -      pts/1    00:00:23 teste  
0 R  1000   2005   1862  99 80    0 - 591 -      pts/1    00:00:19 testel  
0 R  1000   2007   1862  0 80    0 - 5440 -      pts/1    00:00:00 ps  
glenio@glenio-vm:~$
```

6.27:

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
top - 17:12:53 up 50 min, 1 user, load average: 1,54, 0,50, 0,18  
Tasks: 200 total, 3 running, 195 sleeping, 0 stopped, 2 zombie  
%Cpu(s): 33,4 us, 0,0 sy, 0,0 ni, 66,6 id, 0,0 wa, 0,0 hi, 0,0 si, 0,0 st  
MiB Mem : 3928,0 total, 2516,3 free, 470,9 used, 940,8 buff/cache  
MiB Swap: 2048,0 total, 2048,0 free, 0,0 used. 3222,8 avail Mem  


| PID  | USER   | PR | NI | VIRT    | RES    | SHR   | S | %CPU  | %MEM | TIME+   | COMMAND |
|------|--------|----|----|---------|--------|-------|---|-------|------|---------|---------|
| 2005 | glenio | 20 | 0  | 2364    | 576    | 512   | R | 100,0 | 0,0  | 1:19.46 | testel  |
| 2004 | glenio | 20 | 0  | 2364    | 588    | 520   | R | 100,0 | 0,0  | 1:23.52 | teste   |
| 813  | root   | 20 | 0  | 1471712 | 102028 | 38836 | S | 0,6   | 2,5  | 0:11.89 | Xorg    |


```

6.28:

```
Terminal - glenio@gl...  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ps  
 PID TTY      TIME CMD  
1862 pts/1    00:00:00 bash  
2004 pts/1    00:01:56 teste  
2005 pts/1    00:01:52 testel  
2010 pts/1    00:00:00 ps  
glenio@glenio-vm:~$ kill -9 2004  
glenio@glenio-vm:~$ kill -9 2005  
[1]- Killed . ./teste  
glenio@glenio-vm:~$ ps  
 PID TTY      TIME CMD  
1862 pts/1    00:00:00 bash  
2011 pts/1    00:00:00 ps  
[2]+ Killed . ./testel  
glenio@glenio-vm:~$
```

6.29:

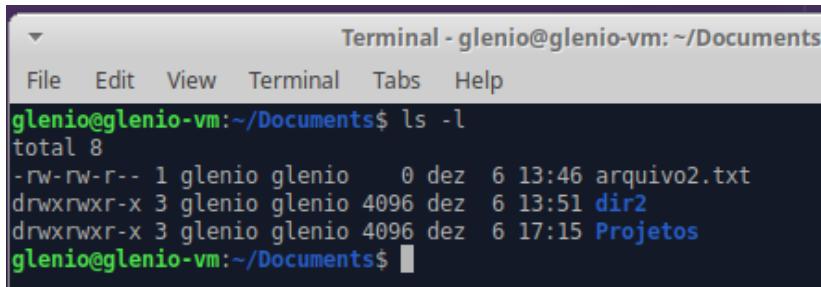
```
Terminal - glenio@gl...  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ nice -19 ./teste  
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ nice -10 ./teste  
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
top - 17:16:23 up 53 min, 1 user, load average: 0,89, 0,61, 0,29  
Tasks: 202 total, 3 running, 196 sleeping, 1 stopped, 2 zombie  
%Cpu(s): 0,0 us, 0,1 sy, 32,1 ni, 67,9 id, 0,0 wa, 0,0 hi, 0,0 si, 0,0 st  
MiB Mem : 3928,0 total, 2514,1 free, 473,1 used, 940,8 buff/cache  
MiB Swap: 2048,0 total, 2048,0 free, 0,0 used. 3220,6 avail Mem  
  
 PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND  
 2014 glenio 39 19 2364 520 452 R 100,0 0,0 0:29.18 teste  
 2016 glenio 30 10 2364 584 520 R 100,0 0,0 0:19.19 teste  
 813 root 20 0 1471712 102028 38836 S 1,0 2,5 0:12.71 Xorg
```

6.30:

```
Terminal - glenio@glenio-vm:  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ./teste &  
[1] 2073  
glenio@glenio-vm:~$ ./testel &  
[2] 2074  
glenio@glenio-vm:~$ ps  
 PID TTY      TIME CMD  
2067 pts/0    00:00:00 bash  
2073 pts/0    00:00:04 teste  
2074 pts/0    00:00:01 testel  
2075 pts/0    00:00:00 ps  
glenio@glenio-vm:~$ renice 9 2073  
2073 (process ID) old priority 0, new priority 9  
glenio@glenio-vm:~$  
Terminal - glenio@glenio-vm:  
File Edit View Terminal Tabs Help  
top - 17:19:35 up 57 min, 1 user, load average: 1,40, 0,87, 0,45  
Tasks: 204 total, 3 running, 196 sleeping, 0 stopped, 5 zombie  
%Cpu(s): 16,0 us, 0,1 sy, 16,1 ni, 67,8 id, 0,0 wa, 0,0 hi, 0,1 si, 0,0 st  
MiB Mem : 3928,0 total, 2517,5 free, 469,5 used, 941,0 buff/cache  
MiB Swap: 2048,0 total, 2048,0 free, 0,0 used. 3224,2 avail Mem  
  
 PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND  
 2073 glenio 29 9 2364 584 516 R 100,0 0,0 0:55.74 teste  
 2074 glenio 20 0 2364 580 512 R 99,7 0,0 0:52.34 testel  
 1830 glenio 20 0 412220 48868 37344 S 0,3 1,2 0:05.83 xfce4-t+  
 1 root 20 0 167324 11228 8320 S 0,0 0,3 0:00.63 systemd  
 2 root 20 0 0 0 0 0 S 0,0 0,0 0:00.00 kthreadd  
 3 root 0 -20 0 0 0 I 0,0 0,0 0:00.00 rcu_gp  
 4 root 0 -20 0 0 0 I 0,0 0,0 0:00.00 rcu_gp
```

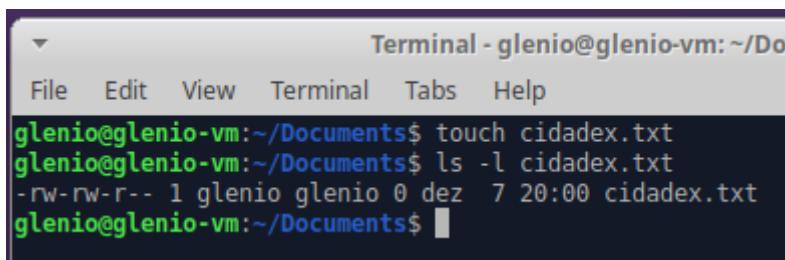
Capítulo 7 : Permissão e Propriedade

7.1: Listando o Proprietário e as Permissões dos Arquivos



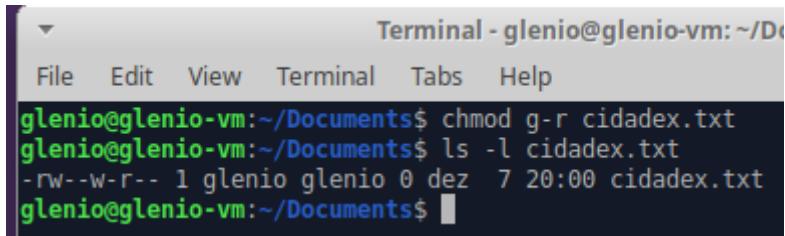
```
Terminal - glenio@glenio-vm: ~/Documents
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Documents$ ls -l
total 8
-rw-rw-r-- 1 glenio glenio 0 dez 6 13:46 arquivo2.txt
drwxrwxr-x 3 glenio glenio 4096 dez 6 13:51 dir2
drwxrwxr-x 3 glenio glenio 4096 dez 6 17:15 Projetos
glenio@glenio-vm:~/Documents$
```

7.2 e 7.3: Criando arquivo cidadex.txt



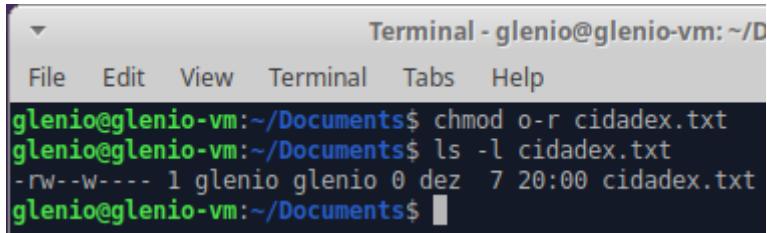
```
Terminal - glenio@glenio-vm: ~/Do
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Documents$ touch cidadex.txt
glenio@glenio-vm:~/Documents$ ls -l cidadex.txt
-rw-rw-r-- 1 glenio glenio 0 dez 7 20:00 cidadex.txt
glenio@glenio-vm:~/Documents$
```

7.4: Removendo Permissão de Leitura do Grupo



```
Terminal - glenio@glenio-vm: ~/Do
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Documents$ chmod g-r cidadex.txt
glenio@glenio-vm:~/Documents$ ls -l cidadex.txt
-rw--w-r-- 1 glenio glenio 0 dez 7 20:00 cidadex.txt
glenio@glenio-vm:~/Documents$
```

7.5: Removendo Permissão de Leitura para Outros



```
Terminal - glenio@glenio-vm: ~/D
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Documents$ chmod o-r cidadex.txt
glenio@glenio-vm:~/Documents$ ls -l cidadex.txt
-rw--w---- 1 glenio glenio 0 dez 7 20:00 cidadex.txt
glenio@glenio-vm:~/Documents$
```

7.6: Removendo Permissão de Leitura para o Usuário

```
Terminal - glenio@glenio-vm: ~/Documents
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Documents$ chmod u-r cidadex.txt
glenio@glenio-vm:~/Documents$ ls -l cidadex.txt
--w--w--- 1 glenio glenio 0 dez 7 20:00 cidadex.txt
glenio@glenio-vm:~/Documents$
```

7.7: Adicionando Permissões para todos

```
Terminal - glenio@glenio-vm: ~/Documents
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Documents$ chmod a+r cidadex.txt
glenio@glenio-vm:~/Documents$ ls -l cidadex.txt
-rw-rw-r-- 1 glenio glenio 0 dez 7 20:00 cidadex.txt
glenio@glenio-vm:~/Documents$
```

7.9: Trocando o Dono de um Arquivo

```
Terminal - glenio@glenio-vm: ~/Documents
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Documents$ chown glenio: cidadex.txt
glenio@glenio-vm:~/Documents$ ls -l cidadex.txt
-rw-rw-r-- 1 glenio glenio 0 dez 7 20:00 cidadex.txt
```

7.10: Trocando as Permissões de um Arquivo

```
Terminal - glenio@glenio-vm: ~/Documents
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Documents$ chmod 777 cidadex.txt
glenio@glenio-vm:~/Documents$ ls -l cidadex.txt
-rwxrwxrwx 1 glenio glenio 0 dez 7 20:00 cidadex.txt
glenio@glenio-vm:~/Documents$ chmod 600 cidadex.txt
glenio@glenio-vm:~/Documents$ ls -l cidadex.txt
-rw----- 1 glenio glenio 0 dez 7 20:00 cidadex.txt
glenio@glenio-vm:~/Documents$
```

7.11: Exemplos de Utilização do chmod

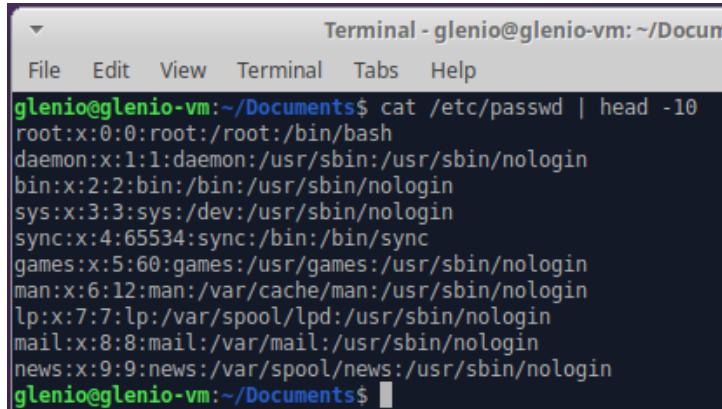
```
Terminal - glenio@glenio-vm:~/Documents
```

```
File Edit View Terminal Tabs Help
```

```
glenio@glenio-vm:~/Documents$ chmod u+x cidadex.txt
glenio@glenio-vm:~/Documents$ ls -l cidadex.txt
-rwx----- 1 glenio glenio 0 dez 7 20:00 cidadex.txt
glenio@glenio-vm:~/Documents$ chmod u+rx cidadex.txt
glenio@glenio-vm:~/Documents$ ls -l cidadex.txt
-rwx----- 1 glenio glenio 0 dez 7 20:00 cidadex.txt
glenio@glenio-vm:~/Documents$ chmod u+r,g+x cidadex.txt
glenio@glenio-vm:~/Documents$ ls -l cidadex.txt
-rwx--x-- 1 glenio glenio 0 dez 7 20:00 cidadex.txt
glenio@glenio-vm:~/Documents$ chmod u-rx cidadex.txt
glenio@glenio-vm:~/Documents$ ls -l cidadex.txt
--w--x-- 1 glenio glenio 0 dez 7 20:00 cidadex.txt
glenio@glenio-vm:~/Documents$ chmod a+x cidadex.txt
glenio@glenio-vm:~/Documents$ ls -l cidadex.txt
--wx--x-- 1 glenio glenio 0 dez 7 20:00 cidadex.txt
glenio@glenio-vm:~/Documents$
```

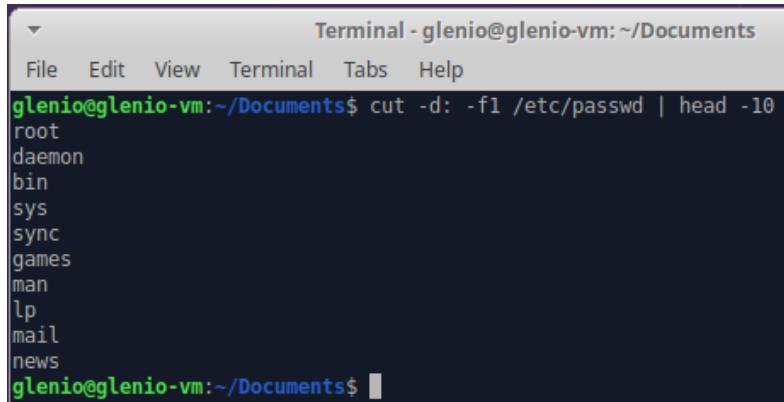
Capítulo 8 : Gerenciando Usuários

8.1: Listando Todos os Usuários do Linux



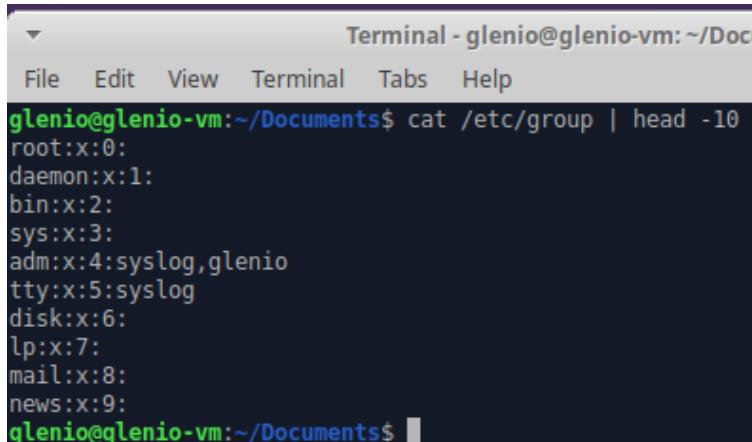
```
Terminal - glenio@glenio-vm: ~/Documents$ cat /etc/passwd | head -10
root:x:0:0:root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
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
glenio@glenio-vm:~/Documents$
```

8.2: Listando Todos os Usuários do Linux



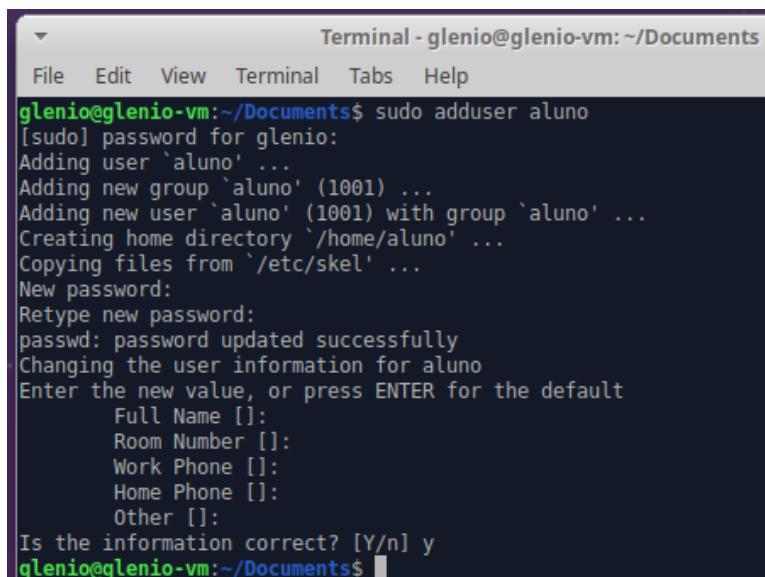
```
Terminal - glenio@glenio-vm: ~/Documents$ cut -d: -f1 /etc/passwd | head -10
root
daemon
bin
sys
sync
games
man
lp
mail
news
glenio@glenio-vm:~/Documents$
```

8.3: Listando Todos os Usuários do Linux



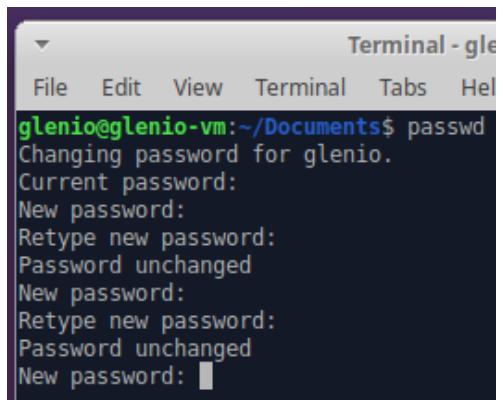
```
Terminal - glenio@glenio-vm: ~/Documents$ cat /etc/group | head -10
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:syslog,glenio
tty:x:5:syslog
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:
glenio@glenio-vm:~/Documents$
```

8.4: Adicionando Usuários



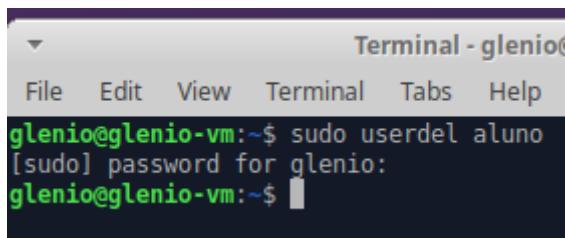
```
Terminal - glenio@glenio-vm:~/Documents
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Documents$ sudo adduser aluno
[sudo] password for glenio:
Adding user `aluno' ...
Adding new group `aluno' (1001) ...
Adding new user `aluno' (1001) with group `aluno' ...
Creating home directory `/home/aluno' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for aluno
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] y
glenio@glenio-vm:~/Documents$
```

8.5: Definindo Senha de Usuário



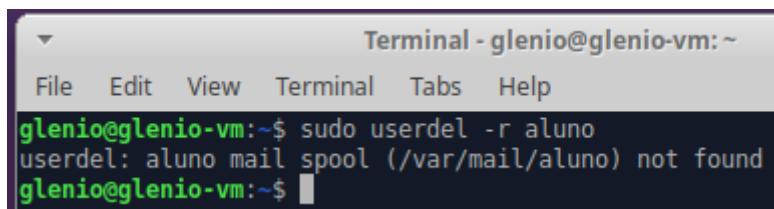
```
Terminal - gle
File Edit View Terminal Tabs Help
glenio@glenio-vm:~/Documents$ passwd
Changing password for glenio.
Current password:
New password:
Retype new password:
Password unchanged
New password:
Retype new password:
Password unchanged
New password:
```

8.6: Apagando Usuários



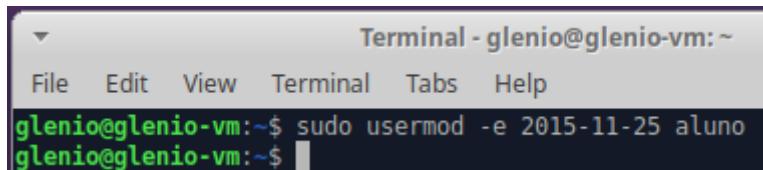
```
Terminal - glenio
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ sudo userdel aluno
[sudo] password for glenio:
glenio@glenio-vm:~$
```

8.7: Apagando Usuários e Arquivos do Usuário



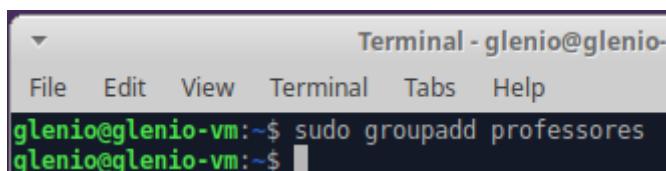
Terminal - glenio@glenio-vm:~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~\$ sudo userdel -r aluno
userdel: aluno mail spool (/var/mail/aluno) not found
glenio@glenio-vm:~\$ █

8.8: Modificando Conta do Usuário



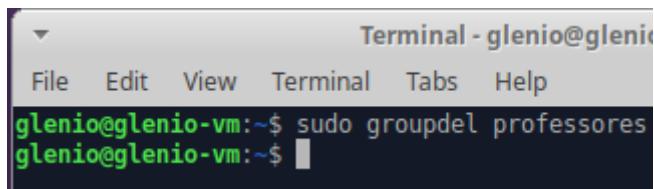
Terminal - glenio@glenio-vm:~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~\$ sudo usermod -e 2015-11-25 aluno
glenio@glenio-vm:~\$ █

8.9: Adicionando um Novo Grupo



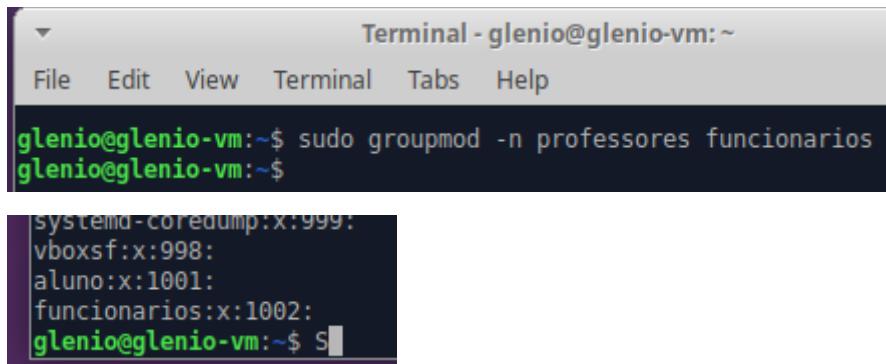
Terminal - glenio@glenio-
File Edit View Terminal Tabs Help
glenio@glenio-vm:~\$ sudo groupadd professores
glenio@glenio-vm:~\$ █

8.10: Apagando um Grupo



Terminal - glenio@glenio-
File Edit View Terminal Tabs Help
glenio@glenio-vm:~\$ sudo groupdel professores
glenio@glenio-vm:~\$ █

8.11: Modificando um Grupo

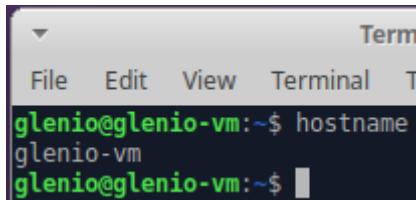


Terminal - glenio@glenio-vm:~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~\$ sudo groupmod -n professores funcionarios
glenio@glenio-vm:~\$

systemd-coredump:x:999:
vboxsf:x:998:
aluno:x:1001:
funcionarios:x:1002:
glenio@glenio-vm:~\$ S █

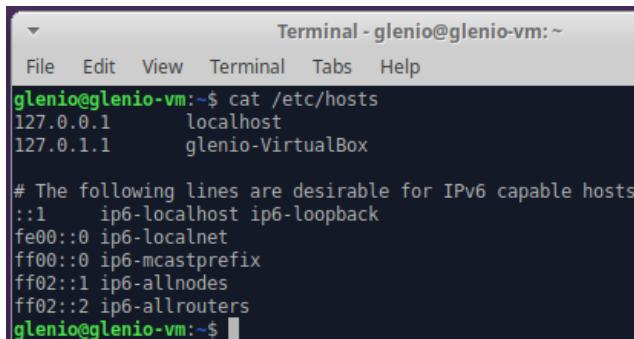
Capítulo 9 : Comandos para Redes de Computadores

9.2: Comando hostname



```
Term
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ hostname
glenio-vm
glenio@glenio-vm:~$
```

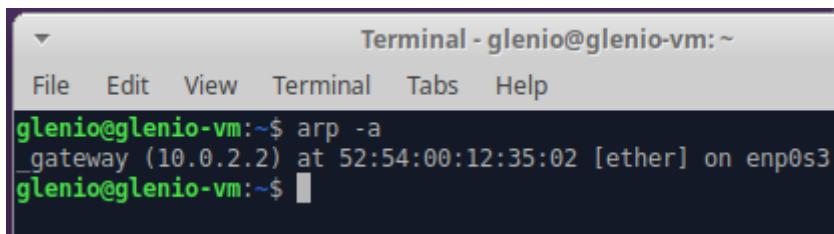
9.3: Nome da Máquina com cat



```
Terminal - glenio@glenio-vm:~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ cat /etc/hosts
127.0.0.1      localhost
127.0.1.1      glenio-VirtualBox

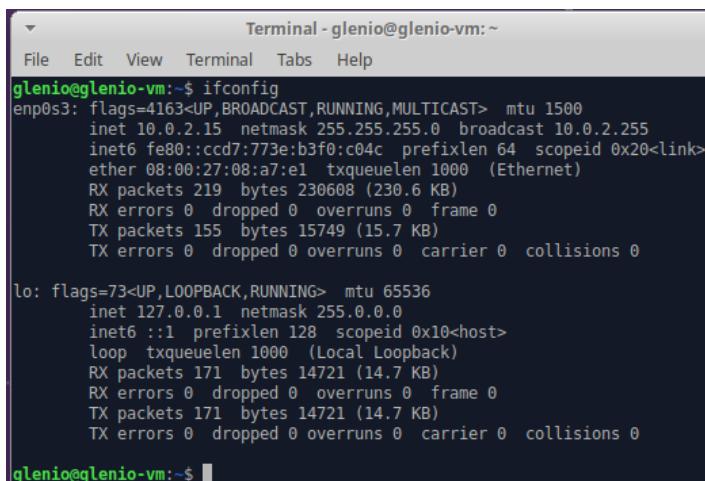
# The following lines are desirable for IPv6 capable hosts
::1      ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
glenio@glenio-vm:~$
```

9.4: Tabela ARP



```
Terminal - glenio@glenio-vm:~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ arp -a
gateway (10.0.2.2) at 52:54:00:12:35:02 [ether] on enp0s3
glenio@glenio-vm:~$
```

9.5: Verificando o Endereço IP

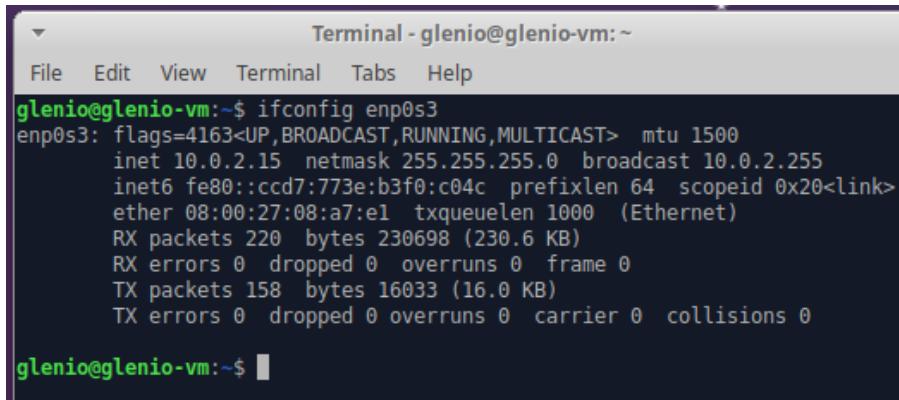


```
Terminal - glenio@glenio-vm:~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.2.15  netmask 255.255.255.0  broadcast 10.0.2.255
        inet6 fe80::cc77e:b3f0:c04c  prefixlen 64  scopeid 0x20<link>
          ether 08:00:27:08:7e:01  txqueuelen 1000  (Ethernet)
            RX packets 219  bytes 230608 (230.6 KB)
            RX errors 0  dropped 0  overruns 0  frame 0
            TX packets 155  bytes 15749 (15.7 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 171  bytes 14721 (14.7 KB)
            RX errors 0  dropped 0  overruns 0  frame 0
            TX packets 171  bytes 14721 (14.7 KB)
            TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0

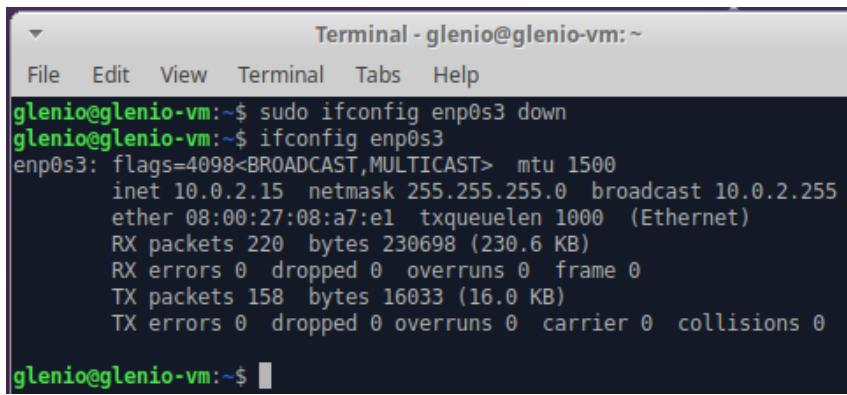
glenio@glenio-vm:~$
```

9.6: Verificando Status da Rede Ethernet



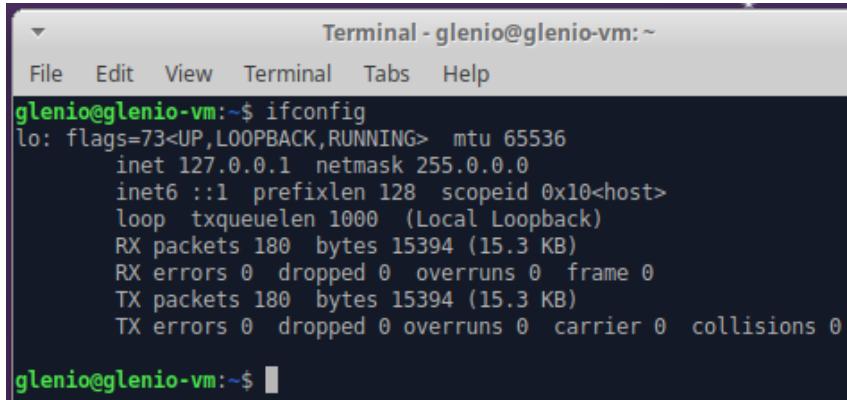
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ifconfig enp0s3  
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
        inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255  
        inet6 fe80::cc7:773e:b3f0:c04c prefixlen 64 scopeid 0x20<link>  
          ether 08:00:27:08:a7:e1 txqueuelen 1000 (Ethernet)  
            RX packets 220 bytes 230698 (230.6 KB)  
            RX errors 0 dropped 0 overruns 0 frame 0  
            TX packets 158 bytes 16033 (16.0 KB)  
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
glenio@glenio-vm:~$
```

9.7: Desabilitando a Interface de Rede Ethernet



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ sudo ifconfig enp0s3 down  
glenio@glenio-vm:~$ ifconfig enp0s3  
enp0s3: flags=4098<BROADCAST,MULTICAST> mtu 1500  
        inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255  
          ether 08:00:27:08:a7:e1 txqueuelen 1000 (Ethernet)  
            RX packets 220 bytes 230698 (230.6 KB)  
            RX errors 0 dropped 0 overruns 0 frame 0  
            TX packets 158 bytes 16033 (16.0 KB)  
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
glenio@glenio-vm:~$
```

9.8: Verificando a Ação Realizada na Listagem 9.7



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ifconfig  
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 180 bytes 15394 (15.3 KB)  
            RX errors 0 dropped 0 overruns 0 frame 0  
            TX packets 180 bytes 15394 (15.3 KB)  
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
glenio@glenio-vm:~$
```

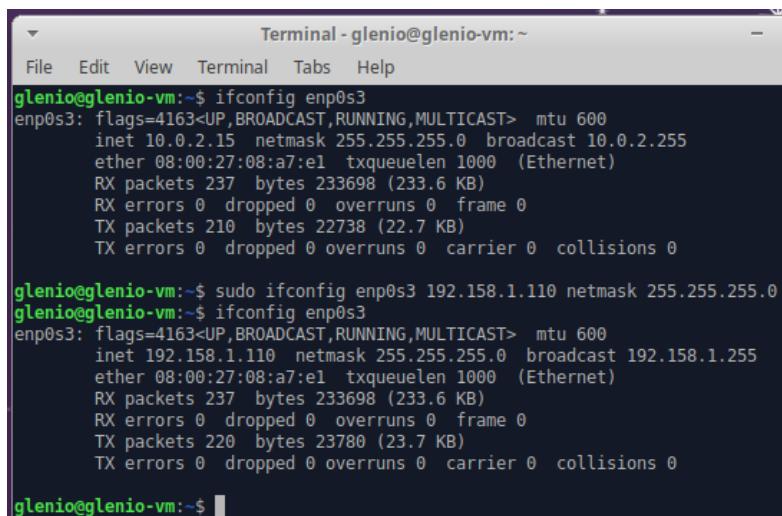
9.9 e 9.10: Habilitando a Interface de Rede Ethernet

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ sudo ifconfig enp0s3 up  
glenio@glenio-vm:~$ 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::cccd7:773e:b3f0:c04c prefixlen 64 scopeid 0x20<link>  
        ether 08:00:27:08:a7:e1 txqueuelen 1000 (Ethernet)  
          RX packets 231 bytes 232608 (232.6 KB)  
          RX errors 0 dropped 0 overruns 0 frame 0  
          TX packets 199 bytes 21045 (21.0 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 18102 (18.1 KB)  
          RX errors 0 dropped 0 overruns 0 frame 0  
          TX packets 212 bytes 18102 (18.1 KB)  
          TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
glenio@glenio-vm:~$
```

9.11 e 9.12: 9.11: Verificando e alterando MTU da Rede Ethernet

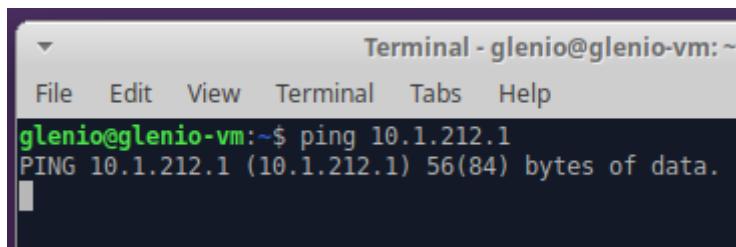
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ifconfig enp0s3  
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
        inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255  
              inet6 fe80::cccd7:773e:b3f0:c04c prefixlen 64 scopeid 0x20<link>  
        ether 08:00:27:08:a7:e1 txqueuelen 1000 (Ethernet)  
          RX packets 235 bytes 233048 (233.0 KB)  
          RX errors 0 dropped 0 overruns 0 frame 0  
          TX packets 205 bytes 21559 (21.5 KB)  
          TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
glenio@glenio-vm:~$ sudo ifconfig enp0s3 mtu 600  
glenio@glenio-vm:~$ ifconfig enp0s3  
enp0s3: flags=4099<UP,BROADCAST,MULTICAST> mtu 600  
        inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255  
              ether 08:00:27:08:a7:e1 txqueuelen 1000 (Ethernet)  
          RX packets 235 bytes 233048 (233.0 KB)  
          RX errors 0 dropped 0 overruns 0 frame 0  
          TX packets 207 bytes 21753 (21.7 KB)  
          TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
glenio@glenio-vm:~$
```

9.13 e 9.14: Verificando e alterando o Endereço IP



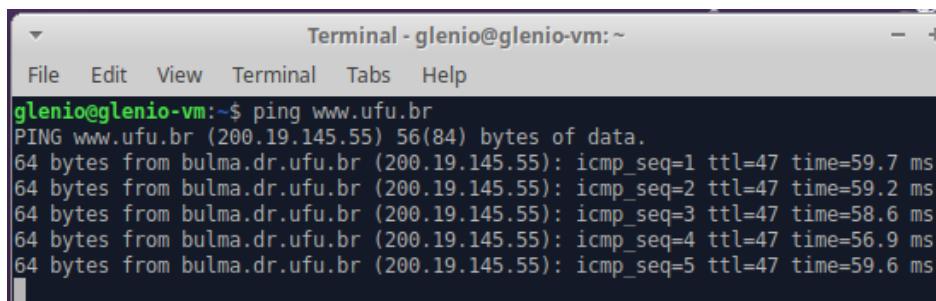
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ifconfig enp0s3  
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 600  
      inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255  
        ether 08:00:27:08:a7:e1 txqueuelen 1000 (Ethernet)  
          RX packets 237 bytes 233698 (233.6 KB)  
          RX errors 0 dropped 0 overruns 0 frame 0  
          TX packets 210 bytes 22738 (22.7 KB)  
          TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
glenio@glenio-vm:~$ sudo ifconfig enp0s3 192.158.1.110 netmask 255.255.255.0  
glenio@glenio-vm:~$ ifconfig enp0s3  
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 600  
      inet 192.158.1.110 netmask 255.255.255.0 broadcast 192.158.1.255  
        ether 08:00:27:08:a7:e1 txqueuelen 1000 (Ethernet)  
          RX packets 237 bytes 233698 (233.6 KB)  
          RX errors 0 dropped 0 overruns 0 frame 0  
          TX packets 220 bytes 23780 (23.7 KB)  
          TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
glenio@glenio-vm:~$
```

9.15: Comando ping



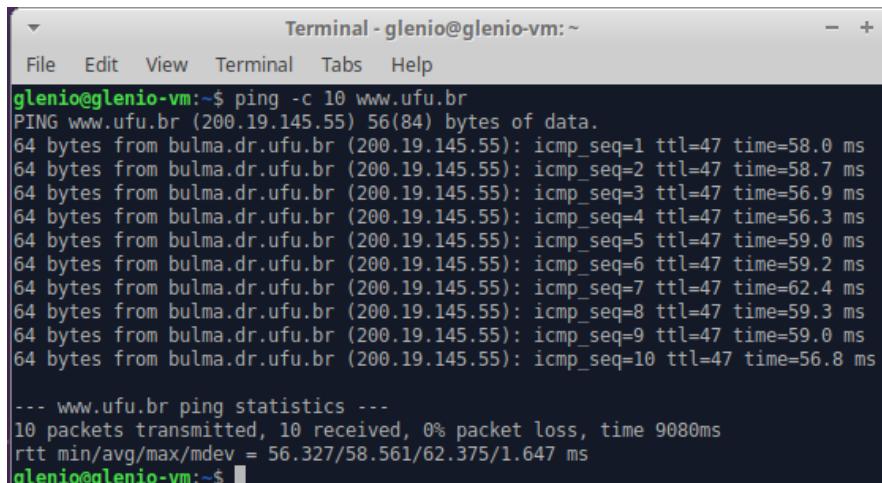
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ping 10.1.212.1  
PING 10.1.212.1 (10.1.212.1) 56(84) bytes of data.  
|
```

9.16: Exemplo do Comando ping



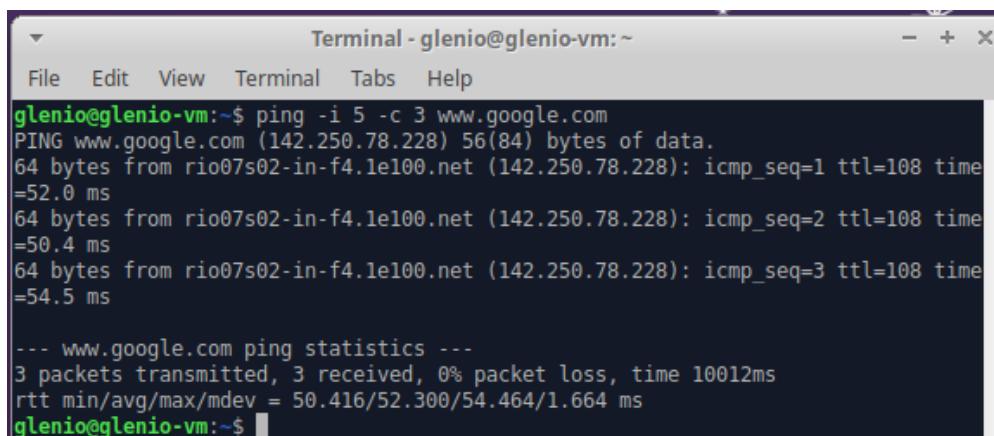
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ping www.ufu.br  
PING www.ufu.br (200.19.145.55) 56(84) bytes of data.  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=1 ttl=47 time=59.7 ms  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=2 ttl=47 time=59.2 ms  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=3 ttl=47 time=58.6 ms  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=4 ttl=47 time=56.9 ms  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=5 ttl=47 time=59.6 ms  
|
```

9.17: Comando ping



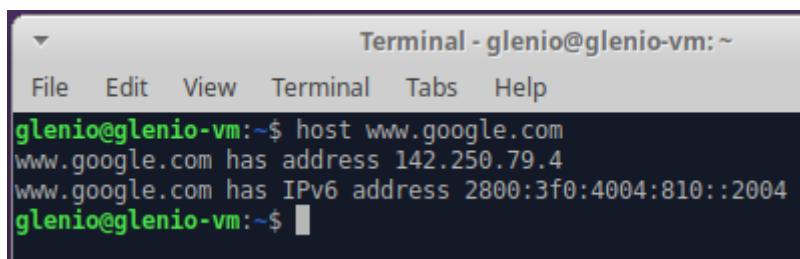
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ping -c 10 www.ufu.br  
PING www.ufu.br (200.19.145.55) 56(84) bytes of data.  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=1 ttl=47 time=58.0 ms  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=2 ttl=47 time=58.7 ms  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=3 ttl=47 time=56.9 ms  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=4 ttl=47 time=56.3 ms  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=5 ttl=47 time=59.0 ms  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=6 ttl=47 time=59.2 ms  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=7 ttl=47 time=62.4 ms  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=8 ttl=47 time=59.3 ms  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=9 ttl=47 time=59.0 ms  
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=10 ttl=47 time=56.8 ms  
  
--- www.ufu.br ping statistics ---  
10 packets transmitted, 10 received, 0% packet loss, time 9080ms  
rtt min/avg/max/mdev = 56.327/58.561/62.375/1.647 ms  
glenio@glenio-vm:~$
```

9.18: Comando ping com Opção de Tempo



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ping -i 5 -c 3 www.google.com  
PING www.google.com (142.250.78.228) 56(84) bytes of data.  
64 bytes from rio07s02-in-f4.1e100.net (142.250.78.228): icmp_seq=1 ttl=108 time  
=52.0 ms  
64 bytes from rio07s02-in-f4.1e100.net (142.250.78.228): icmp_seq=2 ttl=108 time  
=50.4 ms  
64 bytes from rio07s02-in-f4.1e100.net (142.250.78.228): icmp_seq=3 ttl=108 time  
=54.5 ms  
  
--- www.google.com ping statistics ---  
3 packets transmitted, 3 received, 0% packet loss, time 10012ms  
rtt min/avg/max/mdev = 50.416/52.300/54.464/1.664 ms  
glenio@glenio-vm:~$
```

9.19: Descobrindo o Endereço Ip de um Host



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ host www.google.com  
www.google.com has address 142.250.79.4  
www.google.com has IPv6 address 2800:3f0:4004:810::2004  
glenio@glenio-vm:~$
```

9.21: Descobrir Informações sobre um Domínio

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ dig www.google.com  
; <>> DiG 9.16.1-Ubuntu <>> www.google.com  
;; global options: +cmd  
;; Got answer:  
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 65359  
;; 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. 239 IN A 142.251.129.68  
  
;; Query time: 3 msec  
;; SERVER: 127.0.0.53#53(127.0.0.53)  
;; WHEN: qua dez 08 10:32:36 -03 2021  
;; MSG SIZE rcvd: 59  
glenio@glenio-vm:~$
```

9.22: Utilizando o comando nslookup

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ nslookup www.google.com  
Server: 127.0.0.53  
Address: 127.0.0.53#53  
  
Non-authoritative answer:  
Name: www.google.com  
Address: 142.250.79.4  
Name: www.google.com  
Address: 2800:3f0:4004:80a::2004  
glenio@glenio-vm:~$
```

9.24: Rotas

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ traceroute www.google.com  
traceroute to www.google.com (142.250.79.4), 30 hops max, 60 byte packets  
1 _gateway (10.0.2.2) 0.314 ms 0.315 ms 0.308 ms  
2 * * *  
3 * * *  
4 * * *  
5 * * *  
6 * * *  
7 * * *  
8 * * *  
9 * * *  
10 * * *  
11 * * *  
12 * * *  
13 * * *  
14 * * *  
15 * * *  
16 * * *  
17 * * *  
18 * * *  
19 * * *  
20 * * *  
21 * * *  
22 * * *  
23 * * *  
24 * * *  
25 * * *  
26 * * *  
27 * * *  
28 * * *  
29 * * *  
30 * * *  
glenio@glenio-vm:~$
```

9.25: Endereço do Roteador sem Fio

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ 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) 0.264 ms 0.239 ms 0.230 ms  
2 * * *  
3 * * *  
4 * * *  
5 * * *  
6 * * *  
7 * * *  
8 * * *  
9 * * *  
10 * * *  
11 * * *  
12 * * *  
13 * * *  
14 * * *  
15 * * *  
16 * * *  
17 * * *  
18 * * *  
19 * * *  
20 * * *  
21 * * *  
22 * * *  
23 * * *  
24 * * *  
25 * * *  
26 * * *  
27 * * *  
28 * * *  
29 * * *  
30 * * *  
glenio@glenio-vm:~$
```

9.26: Rotas com tracepath

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ tracepath www.ufmg.br  
1? [LOCALHOST] pmtu 1500  
1: _gateway 0.339ms  
1: _gateway 0.174ms  
2: no reply  
3: _gateway 3.134ms !N  
    Resume: pmtu 1500  
glenio@glenio-vm:~$
```

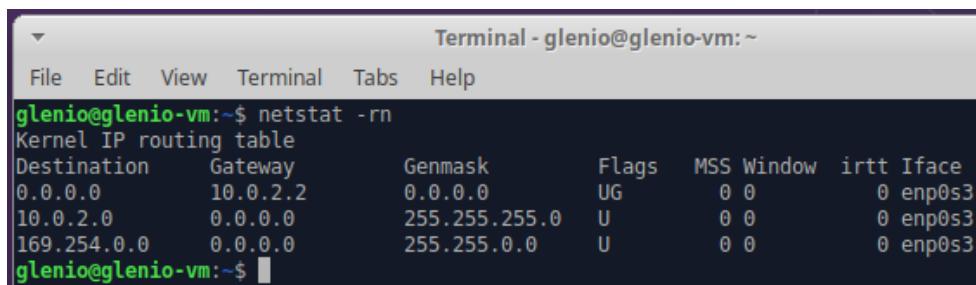
9.27: Estatísticas de Rede com netstat

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ netstat -s  
Ip:  
Forwarding: 2  
1484 total packets received  
1 with invalid addresses  
0 forwarded  
0 incoming packets discarded  
1481 incoming packets delivered  
1367 requests sent out  
20 outgoing packets dropped  
Icmp:  
87 ICMP messages received  
0 input ICMP message failed  
ICMP input histogram:  
    destination unreachable: 41  
    timeout in transit: 11  
    echo replies: 35  
169 ICMP messages sent  
0 ICMP messages failed  
ICMP output histogram:  
    destination unreachable: 41  
    echo requests: 128  
IcmpMsg:  
    InType0: 35  
    InType3: 41  
    InType11: 11  
    OutType3: 41  
    OutType8: 128  
Tcp:  
10 active connection openings  
0 passive connection openings
```

9.28: Comando netstat -i

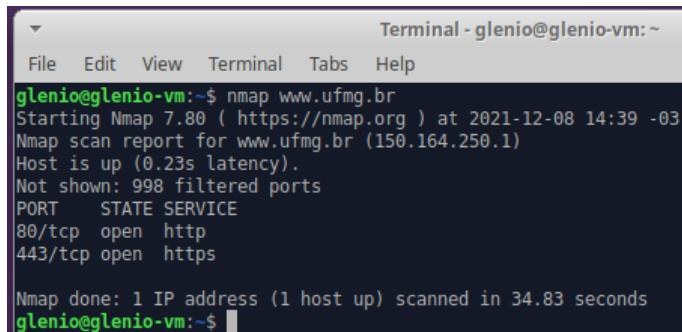
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ netstat -i  
Kernel Interface table  
Iface      MTU     RX-OK RX-ERR RX-DRP RX-OVR     TX-OK TX-ERR TX-DRP TX-OVR Flg  
enp0s3    1500     4971     0     0 0     1143     0     0     0 BMRU  
lo       65536     284     0     0 0     284     0     0     0 LRU  
glenio@glenio-vm:~$
```

9.29: Visualizando Tabela de Roteamento com netstat



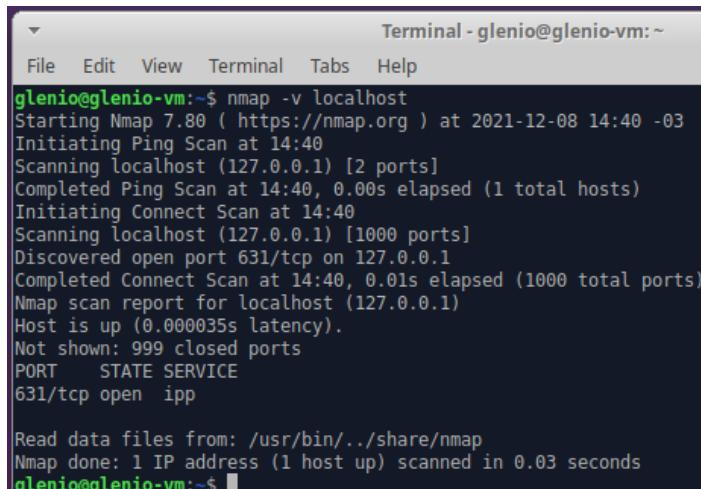
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ netstat -rn  
Kernel IP routing table  
Destination Gateway Genmask Flags MSS Window irtt Iface  
0.0.0.0 10.0.2.2 0.0.0.0 UG 0 0 0 enp0s3  
10.0.2.0 0.0.0.0 255.255.255.0 U 0 0 0 enp0s3  
169.254.0.0 0.0.0.0 255.255.0.0 U 0 0 0 enp0s3  
glenio@glenio-vm:~$
```

9.31: Verificando Portas Abertas



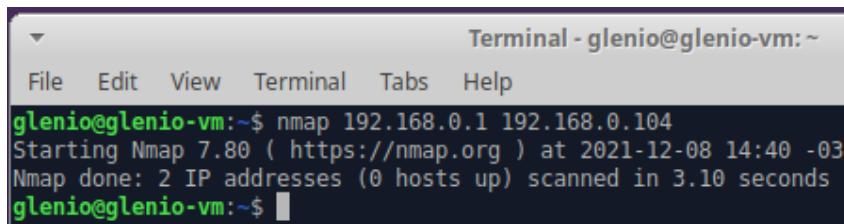
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ nmap www.ufmg.br  
Starting Nmap 7.80 ( https://nmap.org ) at 2021-12-08 14:39 -03  
Nmap scan report for www.ufmg.br (150.164.250.1)  
Host is up (0.23s latency).  
Not shown: 998 filtered ports  
PORT      STATE SERVICE  
80/tcp    open  http  
443/tcp   open  https  
  
Nmap done: 1 IP address (1 host up) scanned in 34.83 seconds  
glenio@glenio-vm:~$
```

9.32: Comando nmap com opção -v



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ nmap -v localhost  
Starting Nmap 7.80 ( https://nmap.org ) at 2021-12-08 14:40 -03  
Initiating Ping Scan at 14:40  
Scanning localhost (127.0.0.1) [2 ports]  
Completed Ping Scan at 14:40, 0.00s elapsed (1 total hosts)  
Initiating Connect Scan at 14:40  
Scanning localhost (127.0.0.1) [1000 ports]  
Discovered open port 631/tcp on 127.0.0.1  
Completed Connect Scan at 14:40, 0.01s elapsed (1000 total ports)  
Nmap scan report for localhost (127.0.0.1)  
Host is up (0.000035s 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 0.03 seconds  
glenio@glenio-vm:~$
```

9.33: Rastreando Múltiplos Hosts.numbers



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ nmap 192.168.0.1 192.168.0.104  
Starting Nmap 7.80 ( https://nmap.org ) at 2021-12-08 14:40 -03  
Nmap done: 2 IP addresses (0 hosts up) scanned in 3.10 seconds  
glenio@glenio-vm:~$
```

9.34: Rastreando Múltiplos Domínios

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ nmap www.google.com www.facebook.com  
Starting Nmap 7.80 ( https://nmap.org ) at 2021-12-08 14:41 -03  
Nmap scan report for www.google.com (142.250.78.196)  
Host is up (0.18s latency).  
Other addresses for www.google.com (not scanned): 2800:3f0:4004:803::2004  
rDNS record for 142.250.78.196: rio07s01-in-f4.1e100.net  
Not shown: 999 filtered ports  
PORT      STATE SERVICE  
80/tcp    open  http  
  
Nmap scan report for www.facebook.com (31.13.88.35)  
Host is up (0.16s latency).  
Other addresses for www.facebook.com (not scanned): 2a03:2880:f111:181:face:b00c:0:25de  
rDNS record for 31.13.88.35: edge-star-mini-shv-02-atl3.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 57.98 seconds  
glenio@glenio-vm:~$
```

9.35: Rastreando uma Sub-rede

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ nmap 192.168.0.*  
Starting Nmap 7.80 ( https://nmap.org ) at 2021-12-08 14:42 -03  
Nmap done: 256 IP addresses (0 hosts up) scanned in 104.92 seconds  
glenio@glenio-vm:~$
```

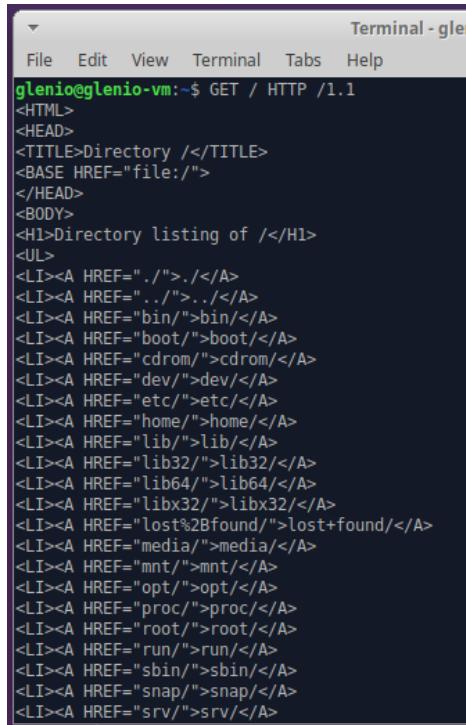
9.36: Visualizando a Tabela de Roteamento

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ 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  
glenio@glenio-vm:~$
```

9.37 e 9.38: Uso do Telnet

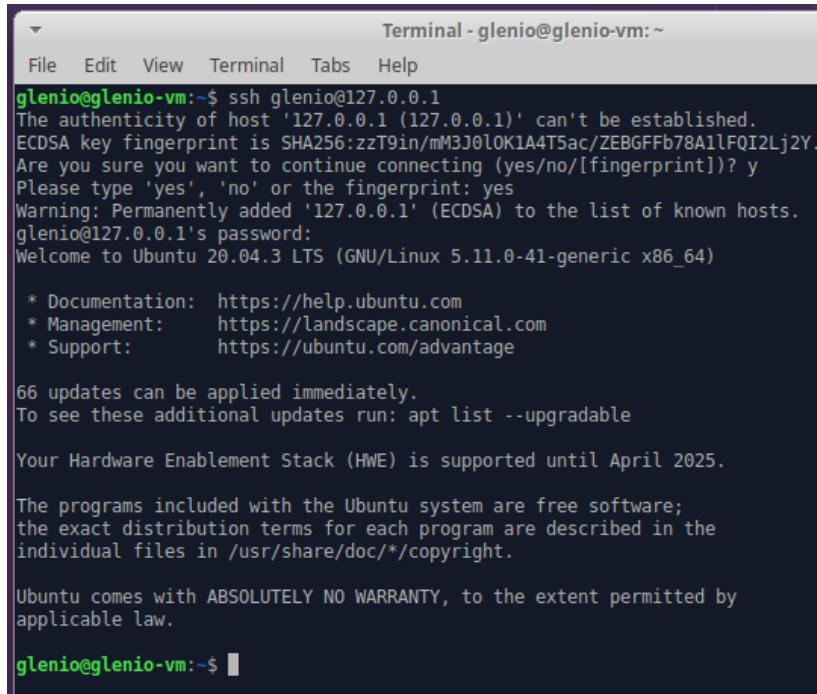
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ telnet www.ufu.br 80  
Trying 200.19.145.55...  
Connected to www.ufu.br.  
Escape character is '^]'.  
[
```

9.39 e 9.40: Acessando com Telnet o Servidor Web



```
Terminal - gler
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ GET / HTTP/1.1
<HTML>
<HEAD>
<TITLE>Directory /</TITLE>
<BASE href="/">
</HEAD>
<BODY>
<H1>Directory listing of /</H1>
<UL>
<LI><A href=".">./</A>
<LI><A href=".">../</A>
<LI><A href="bin/">bin/</A>
<LI><A href="boot/">boot/</A>
<LI><A href="cdrom/">cdrom/</A>
<LI><A href="dev/">dev/</A>
<LI><A href="etc/">etc/</A>
<LI><A href="home/">home/</A>
<LI><A href="lib/">lib/</A>
<LI><A href="lib32/">lib32/</A>
<LI><A href="lib64/">lib64/</A>
<LI><A href="libx32/">libx32/</A>
<LI><A href="lost%2Bfound/">lost+found/</A>
<LI><A href="media/">media/</A>
<LI><A href="mnt/">mnt/</A>
<LI><A href="opt/">opt/</A>
<LI><A href="proc/">proc/</A>
<LI><A href="root/">root/</A>
<LI><A href="run/">run/</A>
<LI><A href="sbin/">sbin/</A>
<LI><A href="snap/">snap/</A>
<LI><A href="srv/">srv/</A>
```

9.42: Utilizando o ssh



```
Terminal - glenio@glenio-vm:~
File Edit View Terminal Tabs Help
glenio@glenio-vm:~$ ssh glenio@127.0.0.1
The authenticity of host '127.0.0.1 (127.0.0.1)' can't be established.
ECDSA key fingerprint is SHA256:zT9in/mM3J0lOK1A4T5ac/ZEBGFFb78AllFQI2Lj2Y.
Are you sure you want to continue connecting (yes/no/[fingerprint])? y
Please type 'yes', 'no' or the fingerprint: yes
Warning: Permanently added '127.0.0.1' (ECDSA) to the list of known hosts.
glenio@127.0.0.1's password:
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.11.0-41-generic x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

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

Your Hardware Enablement Stack (HWE) is supported until April 2025.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

glenio@glenio-vm:~$
```

9.44: Rodando Aplicativos Gráficos Remotamente

```
Terminal - root

File Edit View Terminal Tabs Help

root@glenio-vm:/etc/ssh# cd
root@glenio-vm:~# sudo /etc/init.d/ssh restart
Restarting ssh (via systemctl): ssh.service.
root@glenio-vm:~#
```

9.45: Logando com ssh -X

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ ssh -X glenio@10.0.2.15  
glenio@10.0.2.15's password:  
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.11.0-41-generic x86_64)  
  
 * Documentation:  https://help.ubuntu.com  
 * Management:     https://Landscape.canonical.com  
 * Support:        https://ubuntu.com/advantage  
  
66 updates can be applied immediately.  
To see these additional updates run: apt list --upgradable  
  
Your Hardware Enablement Stack (HWE) is supported until April 2025.  
Last login: Wed Dec  8 15:06:22 2021 from 10.0.2.15  
glenio@glenio-vm:~$
```

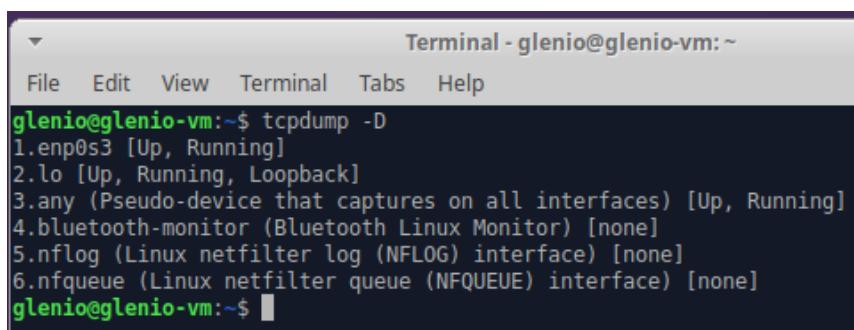
Listagem 9.46: Abrindo Firefox Remotamente

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ firefox &  
[1] 6461  
glenio@glenio-vm:~$ Error: no DISPLAY environment variable specified
```

9.47: Copiando Arquivo em Servidor Remoto

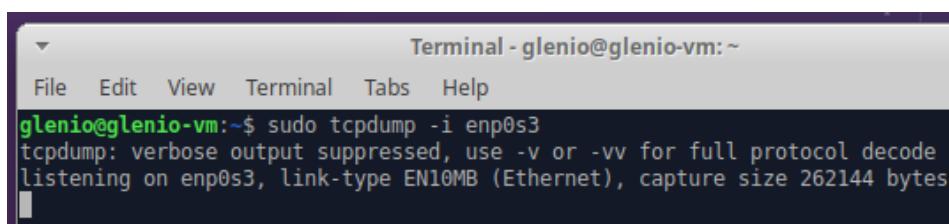
```
Terminal - root@glenio-vm:/etc
File Edit View Terminal Tabs Help
root@glenio-vm:/etc# scp glenio@10.0.2.15:/home/glenio/cidades.txt /usr/glenio
The authenticity of host '10.0.2.15 (10.0.2.15)' can't be established.
ECDSA key fingerprint is SHA256:zzT9in/mM3j0lOK1A4T5ac/ZEBGFFb78A11FQI2LjZY.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '10.0.2.15' (ECDSA) to the list of known hosts.
glenio@10.0.2.15's password:
cidades.txt                                         100%   196    18.0KB/s  00:00
root@glenio-vm:/etc#
```

9.50: Interfaces que podem ser utilizadas com tcpdump



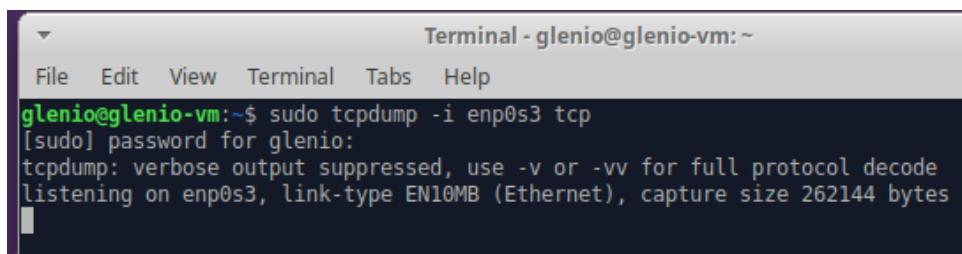
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ tcpdump -D  
1.enp0s3 [Up, Running]  
2.lo [Up, Running, Loopback]  
3.any (Pseudo-device that captures on all interfaces) [Up, Running]  
4.bluetooth-monitor (Bluetooth Linux Monitor) [none]  
5.nflog (Linux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

9.51: Capturando Pacotes da Interface de Rede



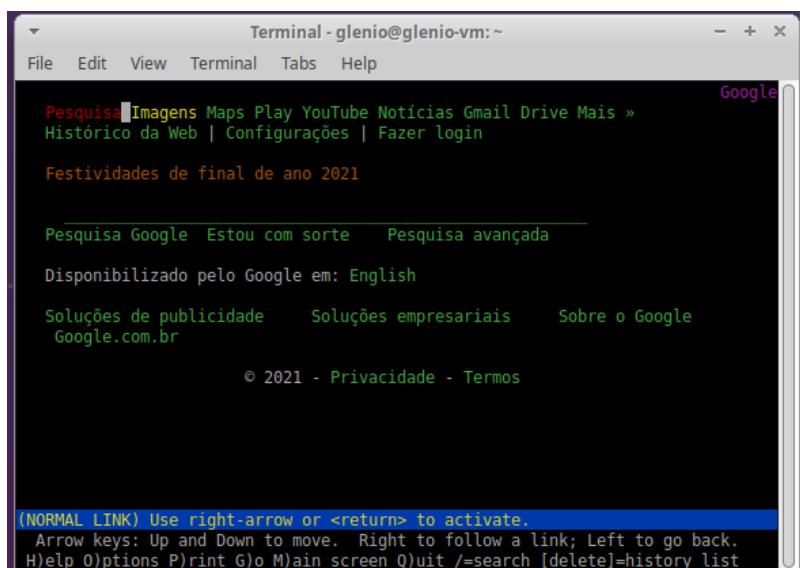
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ sudo tcpdump -i enp0s3  
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode  
listening on enp0s3, link-type EN10MB (Ethernet), capture size 262144 bytes
```

9.52: Filtrando Pacotes pelo Protocolo



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ sudo tcpdump -i enp0s3 tcp  
[sudo] password for glenio:  
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode  
listening on enp0s3, link-type EN10MB (Ethernet), capture size 262144 bytes
```

9.54: Utilizando o lynx



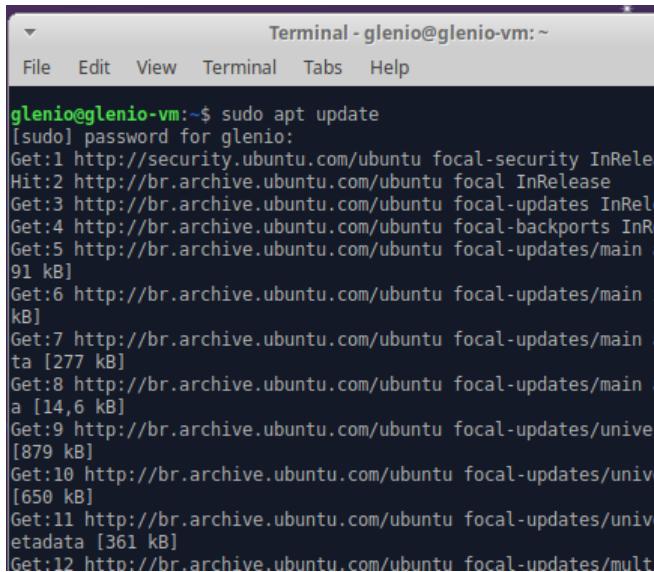
The screenshot shows a terminal window titled "Terminal - glenio@glenio-vm:~". Inside the terminal, a web browser interface is displayed using the Lynx terminal-based web browser. The address bar shows "Google". The page content includes a search bar with "Pesquisa", links for "Imagens", "Maps", "Play", "YouTube", "Notícias", "Gmail", "Drive", and "Mais". Below the search bar, it says "Histórico da Web | Configurações | Fazer login". The main content area displays "Festividades de final de ano 2021". At the bottom, there are navigation links for "Pesquisa Google", "Estou com sorte", "Pesquisa avançada", and language information "Disponibilizado pelo Google em: English". The footer contains links for "Soluções de publicidade", "Soluções empresariais", "Sobre o Google", and "Google.com.br". The copyright notice "© 2021 - Privacidade - Termos" is also present. A status bar at the bottom of the terminal window provides Lynx-specific help text: "(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.", and command options: "(H)elp (O)ptions (P)rint (G)o (M)ain screen (Q)uit /=(search) [delete]=history list".

9.55: Baixando Sites com wget

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ wget --recursive www.ufu.br  
--2021-12-08 15:29:16-- http://www.ufu.br/  
Resolving www.ufu.br (www.ufu.br)... 200.19.145.55  
Connecting to www.ufu.br (www.ufu.br)|200.19.145.55|:80... connected.  
HTTP request sent, awaiting response... 301 Moved Permanently  
Location: https://ufu.br/ [following]  
--2021-12-08 15:29:21-- https://ufu.br/  
Resolving ufu.br (ufu.br)... 200.19.145.55  
Connecting to ufu.br (ufu.br)|200.19.145.55|:443... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: unspecified [text/html]  
Saving to: 'www.ufu.br/index.html'  
  
www.ufu.br/index.ht      [ => ] 103,54K   211KB/s   in 0,5s  
  
2021-12-08 15:29:22 (211 KB/s) - 'www.ufu.br/index.html' saved [106020]  
  
FINISHED --2021-12-08 15:29:22--  
Total wall clock time: 6,3s  
Downloaded: 1 files, 104K in 0,5s (211 KB/s)  
glenio@glenio-vm:~$
```

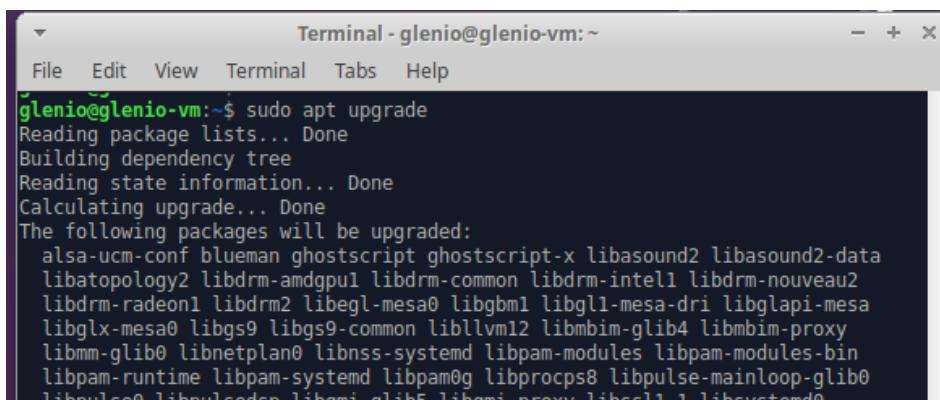
Capítulo 10 : Gerenciamento de Pacotes

10.1: Atualização da Lista de Pacotes Disponíveis



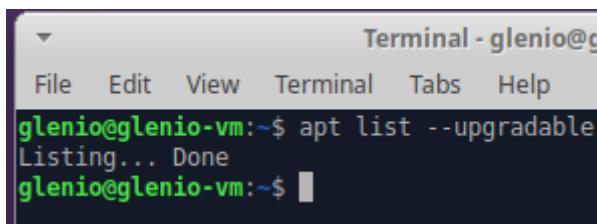
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
  
glenio@glenio-vm:~$ sudo apt update  
[sudo] password for glenio:  
Get:1 http://security.ubuntu.com/ubuntu focal-security InRelease  
Hit:2 http://br.archive.ubuntu.com/ubuntu focal InRelease  
Get:3 http://br.archive.ubuntu.com/ubuntu focal-updates InRelease  
Get:4 http://br.archive.ubuntu.com/ubuntu focal-backports InRelease  
Get:5 http://br.archive.ubuntu.com/ubuntu focal-updates/main armhf  
[91 kB]  
Get:6 http://br.archive.ubuntu.com/ubuntu focal-updates/main armel  
[kB]  
Get:7 http://br.archive.ubuntu.com/ubuntu focal-updates/main armv7l  
[277 kB]  
Get:8 http://br.archive.ubuntu.com/ubuntu focal-updates/main armv6l  
[14,6 kB]  
Get:9 http://br.archive.ubuntu.com/ubuntu focal-updates/universe  
[879 kB]  
Get:10 http://br.archive.ubuntu.com/ubuntu focal-updates/universe  
[650 kB]  
Get:11 http://br.archive.ubuntu.com/ubuntu focal-updates/universe  
metadata [361 kB]  
Get:12 http://br.archive.ubuntu.com/ubuntu focal-updates/multiverse  
[
```

10.2: Atualização de Pacotes



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
  
glenio@glenio-vm:~$ sudo apt upgrade  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
Calculating upgrade... Done  
The following packages will be upgraded:  
alsa-ucm-conf blueman ghostscript ghostscript-x libasound2 libasound2-data  
libatopology2 libdrm-amdgpu1 libdrm-common libdrm-intel1 libdrm-nouveau2  
libdrm-radeon1 libdrm2 libegl-mesa0 libgbm1 libgl1-mesa-dri libglapi-mesa  
libglx-mesa0 libgs9 libgs9-common liblvm12 libmbim-glib4 libmbim-proxy  
libmm-glib0 libnetplan0 libnss-systemd libpam-modules libpam-modules-bin  
libpam-runtime libpam-systemd libpam0g libprocps8 libpulse-mainloop-glib0  
libpulse0 libpulsesoc0 libsmi libsmi-proxy libx11-1 libxext6
```

10.3: Lista de Pacotes para Upgrade



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
  
glenio@glenio-vm:~$ apt list --upgradable  
Listing... Done  
glenio@glenio-vm:~$
```

10.4: Instalação do Pacote vim

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ sudo apt install vim  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following additional packages will be installed:  
  vim-runtime  
Suggested packages:  
  ctags vim-doc vim-scripts  
The following NEW packages will be installed:  
  vim vim-runtime  
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.  
Need to get 7.114 kB of archives.  
After this operation, 34,6 MB of additional disk space will be used.  
Do you want to continue? [Y/n] █
```

10.5: Removendo o Pacote vim

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ sudo apt remove vim  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following package was automatically installed and is no longer required:  
  vim-runtime  
Use 'sudo apt autoremove' to remove it.  
The following packages will be REMOVED:  
  vim  
0 upgraded, 0 newly installed, 1 to remove and 0 not upgraded.  
After this operation, 3.111 kB disk space will be freed.  
Do you want to continue? [Y/n] █
```

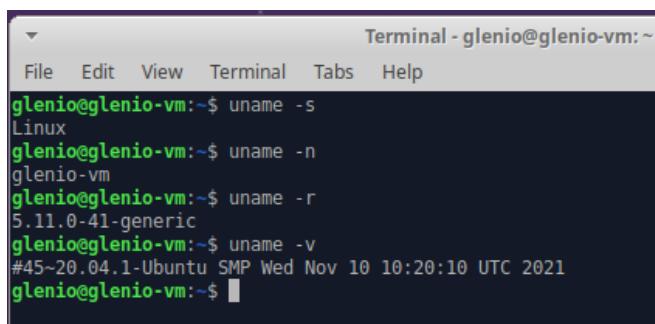
Capítulo 14 : Verificando Configuração de Hardware e Software

14.1: Versão do Kernel



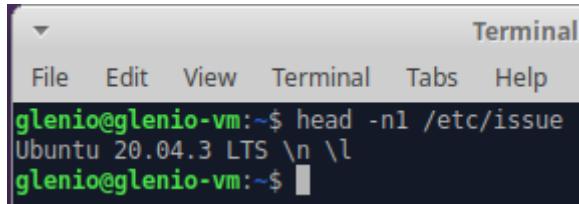
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ uname -a  
Linux glenio-vm 5.11.0-41-generic #45~20.04.1-Ubuntu SMP Wed Nov 10 10:20:10 UTC 2021 x86_64 x86_64 GNU/Linux  
glenio@glenio-vm:~$
```

14.2: Versão do Kernel



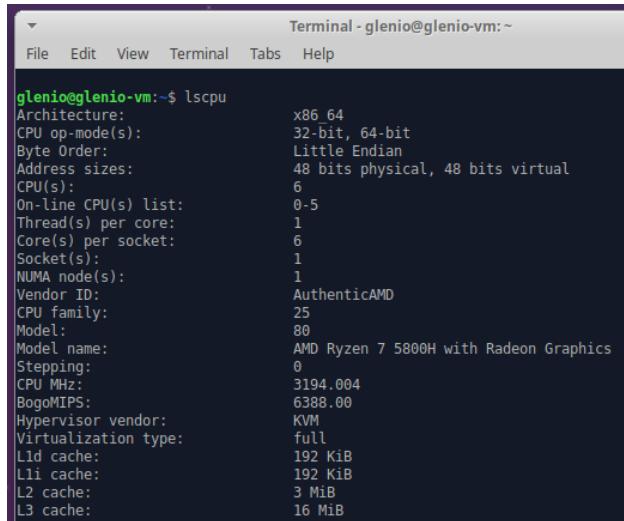
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ uname -s  
Linux  
glenio@glenio-vm:~$ uname -n  
glenio-vm  
glenio@glenio-vm:~$ uname -r  
5.11.0-41-generic  
glenio@glenio-vm:~$ uname -v  
#45~20.04.1-Ubuntu SMP Wed Nov 10 10:20:10 UTC 2021  
glenio@glenio-vm:~$
```

14.3: Verificando sua Distribuição



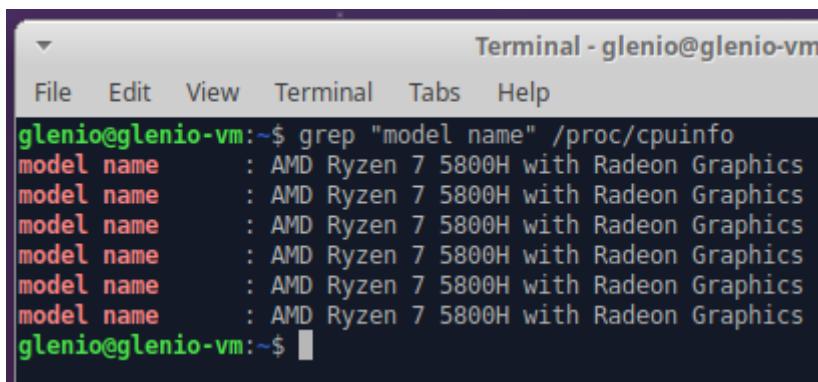
```
Terminal  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ head -n1 /etc/issue  
Ubuntu 20.04.3 LTS \n \l  
glenio@glenio-vm:~$
```

14.4: Verificando Informações sobre a CPU



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ 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): 6  
On-line CPU(s) list: 0-5  
Thread(s) per core: 1  
Core(s) per socket: 6  
Socket(s): 1  
NUMA node(s): 1  
Vendor ID: AuthenticAMD  
CPU family: 25  
Model: 80  
Model name: AMD Ryzen 7 5800H with Radeon Graphics  
Stepping: 0  
CPU MHz: 3194.004  
BogoMIPS: 6388.00  
Hypervisor vendor: KVM  
Virtualization type: full  
L1d cache: 192 KiB  
L1i cache: 192 KiB  
L2 cache: 3 MiB  
L3 cache: 16 MiB  
CPU family: 25  
Model: 80  
Model name: AMD Ryzen 7 5800H with Radeon Graphics  
Stepping: 0  
CPU MHz: 3194.004  
BogoMIPS: 6388.00  
Hypervisor vendor: KVM  
Virtualization type: full  
L1d cache: 192 KiB  
L1i cache: 192 KiB  
L2 cache: 3 MiB  
L3 cache: 16 MiB
```

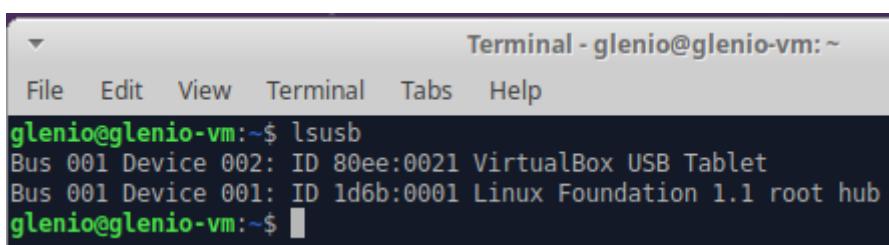
14.5: Verificando a CPU



A terminal window titled "Terminal - glenio@glenio-vm". The menu bar includes File, Edit, View, Terminal, Tabs, and Help. The command entered is "grep \"model name\" /proc/cpuinfo". The output shows multiple entries for the AMD Ryzen 7 5800H with Radeon Graphics processor.

```
glenio@glenio-vm:~$ grep "model name" /proc/cpuinfo
model name      : AMD Ryzen 7 5800H with Radeon Graphics
model name      : AMD Ryzen 7 5800H with Radeon Graphics
model name      : AMD Ryzen 7 5800H with Radeon Graphics
model name      : AMD Ryzen 7 5800H with Radeon Graphics
model name      : AMD Ryzen 7 5800H with Radeon Graphics
model name      : AMD Ryzen 7 5800H with Radeon Graphics
model name      : AMD Ryzen 7 5800H with Radeon Graphics
glenio@glenio-vm:~$
```

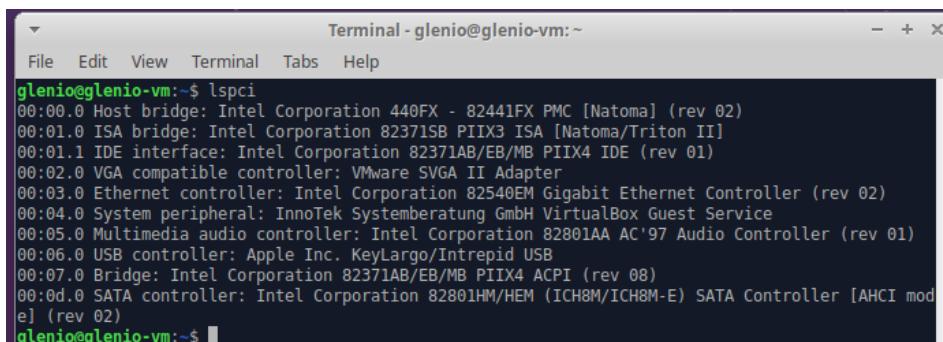
14.6: Verificando a CPU



A terminal window titled "Terminal - glenio@glenio-vm". The menu bar includes File, Edit, View, Terminal, Tabs, and Help. The command entered is "lsusb". The output lists two USB devices: a VirtualBox USB Tablet and a Linux Foundation 1.1 root hub.

```
glenio@glenio-vm:~$ lsusb
Bus 001 Device 002: ID 80ee:0021 VirtualBox USB Tablet
Bus 001 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
glenio@glenio-vm:~$
```

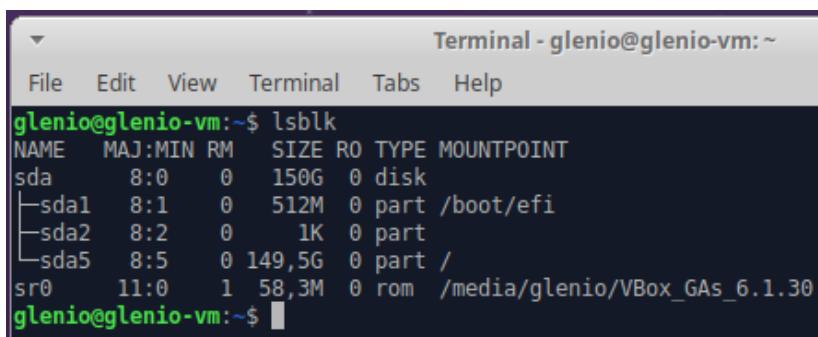
14.7: Listando Dispositivos PCI



A terminal window titled "Terminal - glenio@glenio-vm". The menu bar includes File, Edit, View, Terminal, Tabs, and Help. The command entered is "lspci". The output lists various PCI devices, including an Intel Corporation 440FX PMC, an Intel Corporation 82371SB PIIIX3 ISA, an Intel Corporation 82371AB/EB/MB PIIIX4 IDE, a VMware SVGA II Adapter, an Intel Corporation 82540EM Gigabit Ethernet Controller, an Innotek Systemberatung GmbH VirtualBox Guest Service, an Intel Corporation 82801AA AC'97 Audio Controller, an Apple Inc. KeyLargo/Intrepid USB, an Intel Corporation 82371AB/EB/MB PIIIX4 ACPI, and an Intel Corporation 82801HM/HEM (ICH8M/ICH8M-E) SATA Controller [AHCI mode].

```
glenio@glenio-vm:~$ lspci
00:00.0 Host bridge: Intel Corporation 440FX - 82441FX PMC [Natoma] (rev 02)
00:01.0 ISA bridge: Intel Corporation 82371SB PIIIX3 ISA [Natoma/Triton II]
00:01.1 IDE interface: Intel Corporation 82371AB/EB/MB PIIIX4 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 PIIIX4 ACPI (rev 08)
00:0d.0 SATA controller: Intel Corporation 82801HM/HEM (ICH8M/ICH8M-E) SATA Controller [AHCI mode] (rev 02)
glenio@glenio-vm:~$
```

14.8: Listando Dispositivos Bloco



A terminal window titled "Terminal - glenio@glenio-vm". The menu bar includes File, Edit, View, Terminal, Tabs, and Help. The command entered is "lsblk". The output shows the block devices sda, sda1, sda2, sda5, and sr0, along with their respective details like size and mountpoint.

```
glenio@glenio-vm:~$ lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda     8:0    0 150G  0 disk 
└─sda1  8:1    0  512M  0 part /boot/efi
└─sda2  8:2    0    1K  0 part 
└─sda5  8:5    0 149,5G  0 part /
sr0    11:0   1 58,3M  0 rom  /media/glenio/VBox_GAs_6.1.30
glenio@glenio-vm:~$
```

14.9: Imprimindo as Partições

```
Terminal  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ cat /proc/partitions  
major minor #blocks name  
  
11      0    59672 sr0  
 8      0  157286400 sda  
 8      1    524288 sdal  
 8      2        1 sda2  
 8      5  156759040 sda5  
glenio@glenio-vm:~$
```

14.10: Mostrando as Partições

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ sudo fdisk -l  
Disk /dev/sda: 150 GiB, 161061273600 bytes, 314572800 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: 0xdalle75a  
  
Device      Boot   Start     End   Sectors   Size Id Type  
/dev/sdal   *     2048 1050623 1048576   512M b W95 FAT32  
/dev/sda2       1052670 314570751 313518082 149,5G 5 Extended  
/dev/sda5       1052672 314570751 313518080 149,5G 83 Linux  
glenio@glenio-vm:~$
```

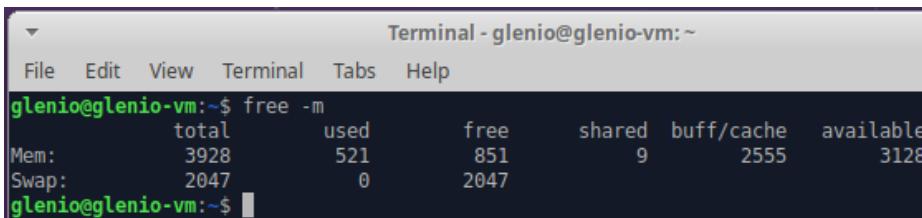
14.12: Listando Dispositivos PCMCIA

```
Terminal  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ lspcmcia  
glenio@glenio-vm:~$
```

14.13: Listando Informações sobre a Memória

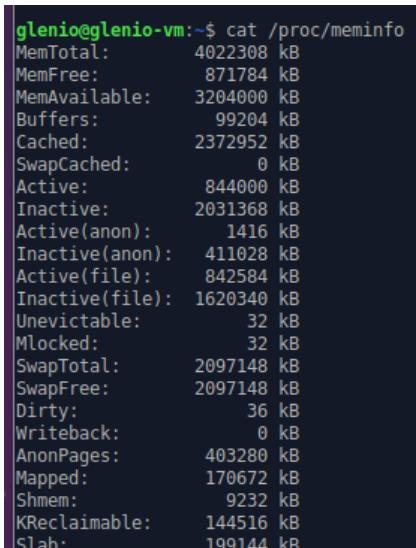
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ free  
total        used         free        shared      buff/cache   available  
Mem: 4022308 533760 871900 9232 2616648 3204076  
Swap: 2097148 0 2097148  
glenio@glenio-vm:~$
```

14.14: Listando Informações sobre a Memória



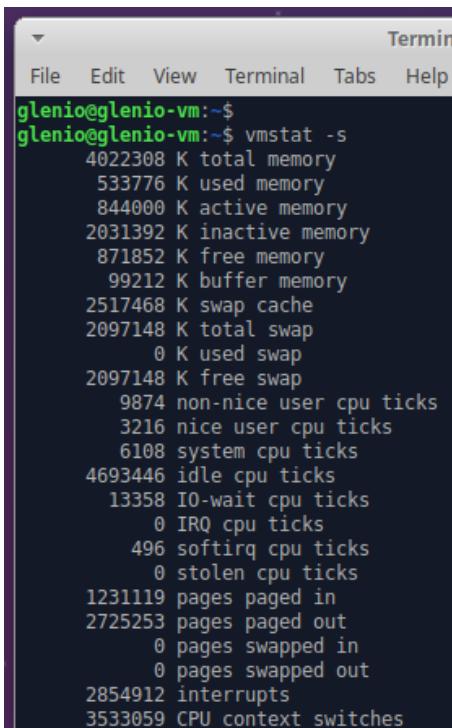
```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ free -m  
total used free shared buff/cache available  
Mem: 3928 521 851 9 2555 3128  
Swap: 2047 0 2047  
glenio@glenio-vm:~$
```

14.15: Listando Informações sobre a Memória



```
glenio@glenio-vm:~$ cat /proc/meminfo  
MemTotal: 4022308 kB  
MemFree: 871784 kB  
MemAvailable: 3204000 kB  
Buffers: 99204 kB  
Cached: 2372952 kB  
SwapCached: 0 kB  
Active: 844000 kB  
Inactive: 2031368 kB  
Active(anon): 1416 kB  
Inactive(anon): 411028 kB  
Active(file): 842584 kB  
Inactive(file): 1620340 kB  
Unevictable: 32 kB  
Mlocked: 32 kB  
SwapTotal: 2097148 kB  
SwapFree: 2097148 kB  
Dirty: 36 kB  
Writeback: 0 kB  
AnonPages: 403280 kB  
Mapped: 170672 kB  
Shmem: 9232 kB  
KReclaimable: 144516 kB  
Slab: 199144 kB
```

14.16: Listando Informações sobre a Memória



```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$  
glenio@glenio-vm:~$ vmstat -s  
4022308 K total memory  
533776 K used memory  
844000 K active memory  
2031392 K inactive memory  
871852 K free memory  
99212 K buffer memory  
2517468 K swap cache  
2097148 K total swap  
0 K used swap  
2097148 K free swap  
9874 non-nice user cpu ticks  
3216 nice user cpu ticks  
6108 system cpu ticks  
4693446 idle cpu ticks  
13358 IO-wait cpu ticks  
0 IRQ cpu ticks  
496 softirq cpu ticks  
0 stolen cpu ticks  
1231119 pages paged in  
2725253 pages paged out  
0 pages swapped in  
0 pages swapped out  
2854912 interrupts  
3533059 CPU context switches
```

14.17: Listando Informações sobre a Memória

```
Terminal - glenio@glenio-vm:~  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ lsmem  
RANGE SIZE STATE REMOVABLE BLOCK  
0x0000000000000000-0x00000000dfffffff 3,5G online yes 0-27  
0x0000000100000000-0x000000011fffffff 512M online yes 32-35  
  
Memory block size: 128M  
Total online memory: 4G  
Total offline memory: 0B  
glenio@glenio-vm:~$
```

14.18: Listando Informações sobre a Memória

```
Terminal -  
File Edit View Terminal Tabs Help  
glenio@glenio-vm:~$ sudo dmidecode -t 17  
# dmidecode 3.2  
Getting SMBIOS data from sysfs.  
SMBIOS 2.5 present.  
glenio@glenio-vm:~$
```

14.20: Analisando os Dispositivos de Hardware

```
Terminal -  
File Edit View Terminal Tabs  
glenio@glenio-vm:~$ sudo hwinfo  
> pppoe.2: discovery  
  
SysFS Device Link: /devices/pci0000:00/0000:00:03.0  
Hardware Class: network interface  
Model: "Ethernet network interface"  
Driver: "e1000"  
Driver Modules: "e1000"  
Device File: enp0s3  
HW Address: 08:00:27:08:a7:e1  
Permanent HW Address: 08:00:27:08:a7:e1  
Link detected: yes  
Config Status: cfg=new, avail=yes, need=no, active=unknown  
Attached to: #20 (Ethernet controller)  
glenio@glenio-vm:~$ S
```

14.21: Versão Resumida do Relatório do lshw

```
glenio@glenio-vm:~$ sudo hwinfo --short
cpu:
    AMD Ryzen 7 5800H with Radeon Graphics, 3194 MHz
    AMD Ryzen 7 5800H with Radeon Graphics, 3194 MHz
    AMD Ryzen 7 5800H with Radeon Graphics, 3194 MHz
    AMD Ryzen 7 5800H with Radeon Graphics, 3194 MHz
    AMD Ryzen 7 5800H with Radeon Graphics, 3194 MHz
    AMD Ryzen 7 5800H with Radeon Graphics, 3194 MHz
keyboard:
    /dev/input/event2      AT Translated Set 2 keyboard
mouse:
    /dev/input/mice        VirtualBox USB Tablet
    /dev/input/mice        Mouse
graphics card:
    VMware VMWARE0405
sound:
    Intel 82801AA AC'97 Audio Controller
storage:
    Intel 82801HM/HEM (ICH8M/ICH8M-E) SATA Controller [AHCI mode]
    Intel 82371AB/EB/MB PIIX4 IDE
network:
    enp0s3                Intel PRO/1000 MT Desktop Adapter
    /dev/input/event6      OSA Express Network card
network interface:
```

14.22: Comando para remover CDROM

