UNIVERSIDADE FEDERAL DE UBERLÂNDIA-UFU
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ENGENHARIA MECATRÔNICA
SISTEMAS DIGITAIS

Relatório Semana 01

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UBERLÂNDIA

2022

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Introdução:

Com a bibliografia disponibilizada, serão realizados alguns comandos no Powersheel do Windows, executando sobre o WSL2, com a distribuição Ubuntu.

Capítulo 1 – Conceitos básicos

Echo: O comando imprime uma frase no shell

```
vitor@ASUS-Vitor:/mnt/c/Users/Vitor Hugo/OneDrive - Universidade Federa
l de Uberlândia/Faculdade/7 Periodo/Sistemas Digitais/SEII-VitorHugoVas
concelosMelo/Semana01$ echo $SHELL
/bin/bash
```

cat: Concatena arquivos

```
vitor@ASUS-Vitor:/mnt/c/Users/Vitor Hugo/OneDrive - Universidade Federa
l de Uberlândia/Faculdade/7 Periodo/Sistemas Digitais/SEII-VitorHugoVas
concelosMelo/Semana01$ 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
/usr/bin/tmux
/usr/bin/screen
```

history: Lista o histórico de comandos

```
vitor@ASUS-Vitor:/mnt/c/Users/Vitor Hugo/OneDrive - Universidade Federa
l de Uberlândia/Faculdade/7 Periodo/Sistemas Digitais/SEII-VitorHugoVas
concelosMelo/Semana01$ history
    1  cd /home
    2  cd
    3  ls
    4  mkdir novo
    5  ls
    6  cd novo
    7  ls ..
    8  cd ..
    9  mkdir Arquivos
   10  cd ..
   11  cd ./Linux
   12  explorer.exe
   13  ~
   14  cd ~
   15  explorer.exe
   16  cd /
   17  ls
   18  explorer.exe
   19  cd ~
   20  ls
   21  explorer.exe
   22  explorer.exe .
   23  top
```

!"n": Pelo historio, pega o número n e executa

```
vitor@ASUS-Vitor:~$ !5
ls
Arquivos  SD  env
```

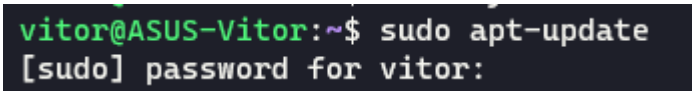
history | grep: Procura no histórico a palavra digitada

```
vitor@ASUS-Vitor:~$ history | grep cd
    1  cd /home
    2  cd
    6  cd novo
    8  cd ..
   10  cd ..
   11  cd ./Linux
   14  cd ~
   16  cd /
   19  cd ~
   37  cd Arq
   38  cd Arquivos/
   40  cd SO
   49  cd hellomake_code/
  110  cd exercicio1/
  160  cd ~
  162  cd Arquivos/
  164  cd SO/
  165  cd hellomake_code/
  167  cd exercicio1/
  284  cd~
  285  cd ~
  287  cd Arq
  288  cd Arquivos/
  290  cd SO/hellomake_code
  295  cd exercicio4
```

history -c: Limpa o histórico

```
vitor@ASUS-Vitor:~$ history -c
vitor@ASUS-Vitor:~$
```

sudo: Coloca o usuário como administrador



Capítulo 2 – Ligando e desligando o Linux

logout: desloga da conta

```
vitor@ASUS-Vitor:~$ logout
[processo encerrado com o código 1 (0x00000001)]
```

exit: Fecha o terminal

```
vitor@ASUS-Vitor:/mnt/c/Users/Vitor Hugo/OneDrive - Universidade Federa
l de Uberlândia/Faculdade/7 Periodo/Sistemas Digi
tais/SEII-VitorHugoVasconcelosMelo/Semana01$ exit
```

shutdown: desligar o computador

shutdown -h +”n”: desliga a máquina após um período de tempo

poweroff: outro comando para desligar a máquina.

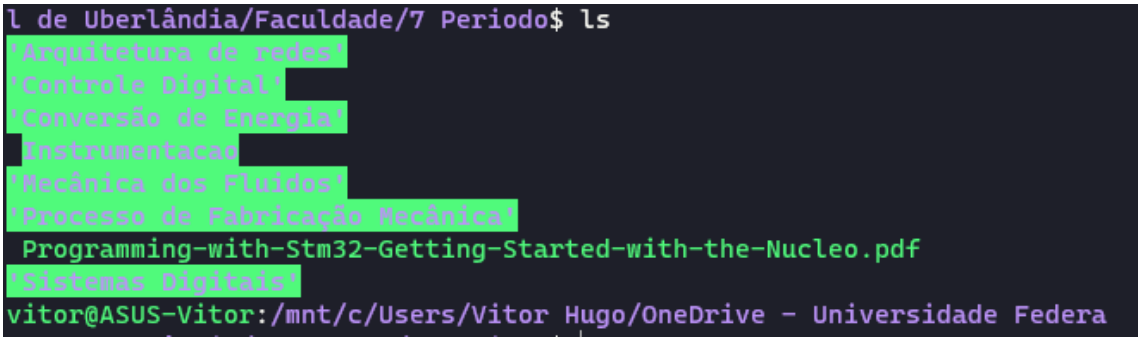
reboot: utilizado para reiniciar a máquina.

shutdown -r +”n”: reinicia em “n” minutos

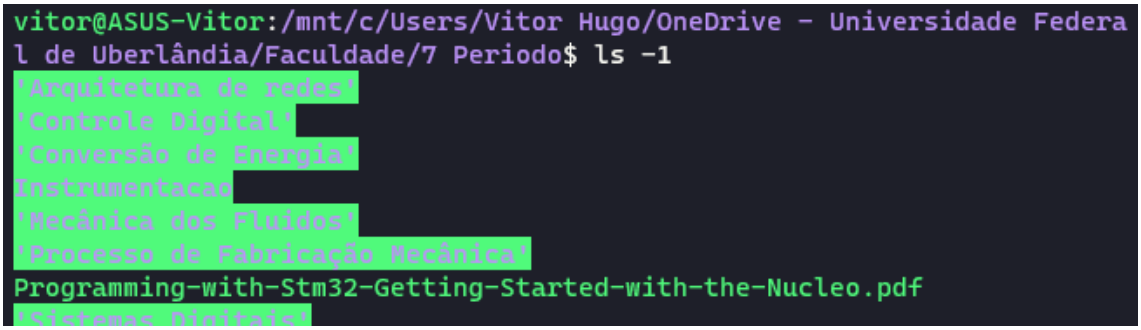
shutdown -r “xx:xx”: reinicia em uma hora

Capítulo 3 – Operações em diretórios de arquivos

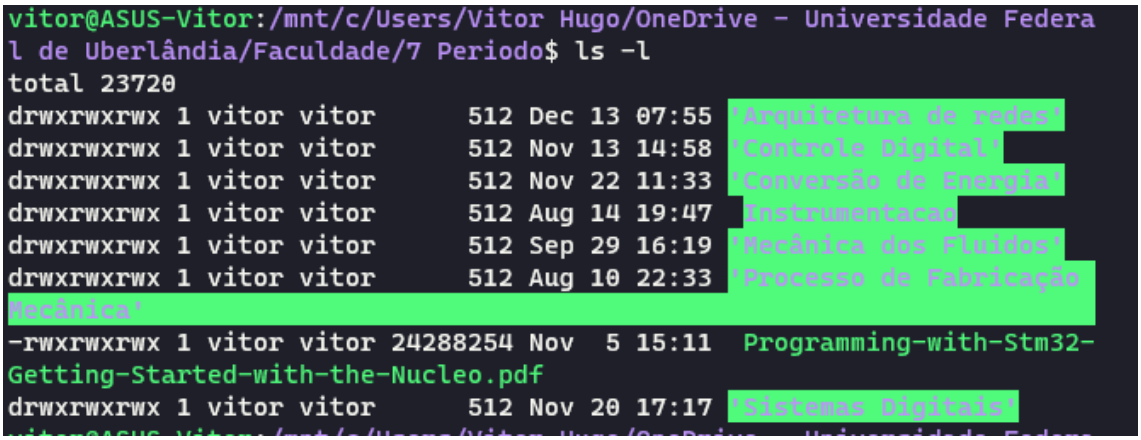
ls: exibe os arquivos e pastas do diretório atual



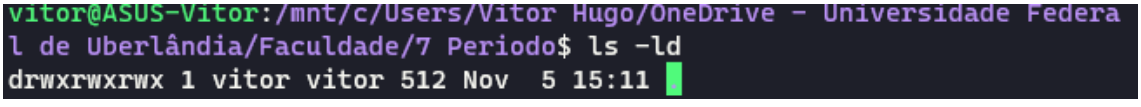
ls -1: exibe conteúdo do diretório adicionando uma entrada por linha.



ls -l: imprime informações extras



ls -ld: exibe informações do diretório atual



ls -a: apresenta arquivos ocultos

```
vitor@ASUS-Vitor:/mnt/c/Users/Vitor Hugo/OneDrive - Universidade Federa
l de Uberlândia/Faculdade/7 Periodo$ ls -a
 .
 ..
'Arquitetura de redes'
'Controle Digital'
'Conversão de Energia'
 Instrumentacao
'Mecânica dos Fluidos'
'Processo de Fabricação Mecânica'
 Programming-with-Stm32-Getting-Started-with-the-Nucleo.pdf
'Sistemas Digitais'
```

ls -F: classifica os arquivos

```
vitor@ASUS-Vitor:/mnt/c/Users/Vitor Hugo/OneDrive - Universidade Federa
l de Uberlândia/Faculdade/7 Periodo$ ls -F
'Arquitetura de redes'/
'Controle Digital'/
'Conversão de Energia'/
 Instrumentacao/
'Mecânica dos Fluidos'/
'Processo de Fabricação Mecânica'/
 Programming-with-Stm32-Getting-Started-with-the-Nucleo.pdf*
'Sistemas Digitais'/
```

ls -s:lista os arquivos em tamanho em blocos

```
vitor@ASUS-Vitor:/mnt/c/Users/Vitor Hugo/OneDrive - Universidade Federa
l de Uberlândia/Faculdade/7 Periodo$ ls -s
total 23720
    0 'Arquitetura de redes'
    0 'Controle Digital'
    0 'Conversão de Energia'
    0  Instrumentacao
    0 'Mecânica dos Fluidos'
    0 'Processo de Fabricação Mecânica'
23720  Programming-with-Stm32-Getting-Started-with-the-Nucleo.pdf
    0 'Sistemas Digitais'
```

ls -h: exibe os arquivos com o tamanho em unidades

```
vitor@ASUS-Vitor:/mnt/c/Users/Vitor Hugo/OneDrive - Universidade Federa
l de Uberlândia/Faculdade/7 Periodo$ ls -h
'Arquitetura de redes'
'Controle Digital'
'Conversão de Energia'
 Instrumentacao
'Mecânica dos Fluidos'
'Processo de Fabricação Mecânica'
 Programming-with-Stm32-Getting-Started-with-the-Nucleo.pdf
'Sistemas Digitais'
```

ls -R: exibe recursivamente o conteúdo

```
vitor@ASUS-Vitor:/mnt/c/Users/Vitor Hugo/OneDrive - Universidade Federa
l de Uberlândia/Faculdade/7 Periodo$ ls -R
.:
'Arquitetura de redes'
'Controle Digital'
'Conversão de Energia'
 Instrumentacao
'Mecânica dos Fluidos'
'Processo de Fabricação Mecânica'
 Programming-with-Stm32-Getting-Started-with-the-Nucleo.pdf
'Sistemas Digitais'

'./Arquitetura de redes':
'Artigos Recomendados'  'Redes de Computadores - Tanenbaum - 4aEd.pdf'
'Livro Holzmann.pdf'     Slides
 PlanoEnsino-Redes.pdf

'./Arquitetura de redes/Artigos Recomendados':
'Artigo 1 - TheClaytonTunnel-CaseStudy.pdf'
'Artigo 2 - ReliableFullDuplexFileTransmissionOverHalfDuplexTelephoneLi
```

cd ~ : vai rapidamente para o diretório home

cd .. : volta um diretorio

pwd: exibe diretório atual

cp -r: copia hierarquias de arquivos

```
vitor@ASUS-Vitor:~$ cd ~
vitor@ASUS-Vitor:~$ cd ..
vitor@ASUS-Vitor:/home$ pwd
/home
vitor@ASUS-Vitor:/home$ cp -r
```

touch: cria arquivos vazios.

rm: apaga arquivos.

Capítulo 4 – Comandos para manipulação de arquivos de texto

echo: Exibe a string

```
vitor@ASUS-Vitor:/home$ echo 'Hello word'
Hello word
```

cat: concatena arquivos

```
vitor@ASUS-Vitor:/home$ cat teste1.txt
```

cut: Seleciona uma parte da frase

```
vitor@ASUS-Vitor:/home$ echo 'Hello Word' | cut -c 1-4
Hell
```

seq: imprime sequencia de numeros

```
vitor@ASUS-Vitor:/home$ seq 10
1
2
3
4
5
6
7
8
9
10
```

Capítulo 5 – Comandos do sistema

compgen: exibe todos os comandos diponíveis

```
vitor@ASUS-Vitor:/home$ compgen
```

whoami: exibe nome do usuário atual.

```
vitor@ASUS-Vitor:/home$ whoami
vitor
```

id: Relaciona usuários e identificadores

```
vitor@ASUS-Vitor:/home$ id
uid=1000(vitor) gid=1000(vitor) groups=1000(vitor),4(adm),
20(dialout),24(cdrom),25(floppy),27(sudo),29(audio),30(dip
),44(video),46(plugdev),117(netdev)
```

passwd: Usado para mudar a senha

```
vitor@ASUS-Vitor:/home$ passwd
Changing password for vitor.
Current password:
```

users: Exibe os usuários logados

```
vitor@ASUS-Vitor:~$ users
```

finger: infos dos usuários cadastrados

```
vitor@ASUS-Vitor:~$ sudo apt install finger
[sudo] password for vitor:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  finger
0 upgraded, 1 newly installed, 0 to remove and 202 not upgraded.
Need to get 16.9 kB of archives.
After this operation, 51.2 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/universe amd64 finger amd6
4 0.17-17 [16.9 kB]
Fetched 16.9 kB in 1s (27.1 kB/s)
Selecting previously unselected package finger.
(Reading database ... 39184 files and directories currently installed.)
Preparing to unpack .../finger_0.17-17_amd64.deb ...
Unpacking finger (0.17-17) ...
Setting up finger (0.17-17) ...
Processing triggers for man-db (2.9.1-1) ...
```

```
vitor@ASUS-Vitor:~$ finger vitor
Login: vitor                            Name:
Directory: /home/vitor                  Shell: /bin/bash
Never logged in.
No mail.
No Plan.
```

free: mostra o uso de memória

uname: Mostra informações do SO

```
vitor@ASUS-Vitor:~$ free
               total        used        free      shared  buff/cache   a
vailable
Mem:         3947004      255384     3409852         292      281768
 3477340
Swap:        1048576           0     1048576
vitor@ASUS-Vitor:~$ uname
Linux
vitor@ASUS-Vitor:~$ uname -r
5.10.16.3-microsoft-standard-WSL2
vitor@ASUS-Vitor:~$ uname -m
x86_64
vitor@ASUS-Vitor:~$ uname -r
5.10.16.3-microsoft-standard-WSL2
```

uptime: apresenta a hora

timeout: executa um comando por um determinado tempo

```
vitor@ASUS-Vitor:~$ uptime
 11:16:50 up 39 min,  0 users,  load average: 0.07, 0.11, 0.05
vitor@ASUS-Vitor:~$ timeout 3 ping www.globo.com
PING home.cache.aws.cloud.globo (186.192.81.5) 56(84) bytes of data.
64 bytes from 186-192-81-5.prt.globo.com (186.192.81.5): icmp_seq=1 ttl
=246 time=17.6 ms
64 bytes from 186-192-81-5.prt.globo.com (186.192.81.5): icmp_seq=2 ttl
=246 time=17.6 ms
64 bytes from 186-192-81-5.prt.globo.com (186.192.81.5): icmp_seq=3 ttl
=246 time=16.4 ms
```

w: Mostra quais usuários estão logados e o que estão fazendo

```
vitor@ASUS-Vitor:~$ w
 11:18:16 up 41 min,  0 users,  load average: 0.02, 0.08, 0.04
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
```

whatis: mostra a informação de cada comando

```
vitor@ASUS-Vitor:~$ whatis who
who (1)              - show who is logged on
```

Capítulo 6 – Gerenciamento de processos

ps: Mostra todos os comandos em execução

```
vitor@ASUS-Vitor:~$ ps -aef
UID          PID  PPID  C STIME TTY          TIME CMD
root           1     0  0 10:45 ?        00:00:00 /init
root          85     1  0 11:13 ?        00:00:00 /init
root          86    85  0 11:13 ?        00:00:00 /init
vitor         87    86  0 11:13 pts/0    00:00:00 -bash
vitor        351    87  0 11:25 pts/0    00:00:00 ps -aef
```

ps -u: processos de um determinado user

ps -r: processos por ordem de uso de CPU

ps -m: processos por ordem de uso de memória

```
vitor@ASUS-Vitor:~$ ps -u
USER         PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAN
D
vitor         87  0.0  0.1  10056  5148 pts/0    Ss   11:13   0:00 -bash
vitor        352  0.0  0.0  10620  3220 pts/0    R+   11:25   0:00 ps -u
vitor@ASUS-Vitor:~$ ps -r
  PID TTY      STAT   TIME COMMAND
  353 pts/0    R+     0:00 ps -r
vitor@ASUS-Vitor:~$ ps -m
  PID TTY          TIME CMD
   87 pts/0    00:00:00 bash
    - -        00:00:00 -
  354 pts/0    00:00:00 ps
    - -        00:00:00 -
```

pstree: Comandos em execução dispostos em árvore

```
vitor@ASUS-Vitor:~$ pstree
init─┬─init───init───bash───pstree
     └─2*[{init}]
```

top: informações sobre os processos em execução

```
vitor@ASUS-Vitor:~$ top
top - 11:26:36 up 49 min,  0 users,  load average: 0.00, 0.00, 0.00
Tasks:   5 total,   1 running,   4 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
MiB Mem :   3854.5 total,   3329.9 free,    248.6 used,    276.0 buff/
MiB Swap:   1024.0 total,   1024.0 free,      0.0 used.   3396.6 avail

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+
    1 root      20   0    1804   1192   1104 S   0.0   0.0   0:00.03
   85 root      20   0    1824     92      0 S   0.0   0.0   0:00.00
   86 root      20   0    1824    108      0 S   0.0   0.0   0:00.05
   87 vitor     20   0   10056   5148   3376 S   0.0   0.1   0:00.13
  356 vitor     20   0   10884   3844   3324 R   0.0   0.1   0:00.00
```

kill: Mata um determinado processo

```
vitor@ASUS-Vitor:~$ kill -l
 1) SIGHUP       2) SIGINT       3) SIGQUIT      4) SIGILL       5) SIG
TRAP
 6) SIGABRT      7) SIGBUS       8) SIGFPE       9) SIGKILL     10) SIG
USR1
11) SIGSEGV     12) SIGUSR2     13) SIGPIPE     14) SIGALRM     15) SIG
TERM
16) SIGSTKFLT   17) SIGCHLD     18) SIGCONT     19) SIGSTOP     20) SIG
TSTP
21) SIGTTIN     22) SIGTTOU     23) SIGURG      24) SIGXCPU     25) SIG
XFSZ
26) SIGVTALRM   27) SIGPROF     28) SIGWINCH    29) SIGIO       30) SIG
PWR
31) SIGSYS      34) SIGRTMIN    35) SIGRTMIN+1  36) SIGRTMIN+2  37) SIG
RTMIN+3
38) SIGRTMIN+4  39) SIGRTMIN+5  40) SIGRTMIN+6  41) SIGRTMIN+7  42) SIG
RTMIN+8
43) SIGRTMIN+9  44) SIGRTMIN+10 45) SIGRTMIN+11 46) SIGRTMIN+12 47) SIG
RTMIN+13
48) SIGRTMIN+14 49) SIGRTMIN+15 50) SIGRTMAX-14 51) SIGRTMAX-13 52) SIG
RTMAX-12
53) SIGRTMAX-11 54) SIGRTMAX-10 55) SIGRTMAX-9  56) SIGRTMAX-8  57) SIG
RTMAX-7
58) SIGRTMAX-6  59) SIGRTMAX-5  60) SIGRTMAX-4  61) SIGRTMAX-3  62) SIG
RTMAX-2
63) SIGRTMAX-1  64) SIGRTMAX
```

Capítulo 7 – Permissão e Propriedade

chmod: este comando altera as permissões do arquivo.

chown: usado para trocar o dono de um arquivo

Capítulo 8 – Gerenciamento de usuários

adduser: adiciona um usuário

```
vitor@ASUS-Vitor:~$ sudo adduser vitor2
Adding user `vitor2' ...
Adding new group `vitor2' (1001) ...
Adding new user `vitor2' (1001) with group `vitor2' ...
Creating home directory `/home/vitor2' ...
Copying files from `/etc/skel' ...
```

usermod: altera infos dos users

groupadd: cria grupo de users

groupmod: mesma coisa para users, mas agora para grupos

groupdel: apaga o grupo users

Capítulo 9 – Comando para Redes de PC

hostname: descobre o nome do pc

```
vitor@ASUS-Vitor:~$ hostname
ASUS-Vitor
```

arp: Infos de MAC e ip

```
vitor@ASUS-Vitor:~$ arp

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

sudo apt install net-tools

vitor@ASUS-Vitor:~$ sudo apt install net-tools
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  net-tools
0 upgraded, 1 newly installed, 0 to remove and 202 not upgraded.
Need to get 196 kB of archives.
After this operation, 864 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/main amd64 net-tools amd64
 1.60+git20180626.aebd88e-1ubuntu1 [196 kB]
Fetched 196 kB in 2s (118 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 39190 files and directories currently installed.)
Preparing to unpack .../net-tools_1.60+git20180626.aebd88e-1ubuntu1_amd
64.deb ...
Unpacking net-tools (1.60+git20180626.aebd88e-1ubuntu1) ...
Setting up net-tools (1.60+git20180626.aebd88e-1ubuntu1) ...
Processing triggers for man-db (2.9.1-1) ...
vitor@ASUS-Vitor:~$ arp
Address                  HWtype  HWaddress           Flags Mask
    Iface
ASUS-Vitor.mshome.net    ether   00:15:5d:c9:bc:17   C
    eth0
```

ifconfig: Fornece as infos do endereço IP

```
vitor@ASUS-Vitor:~$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 172.21.193.132  netmask 255.255.240.0  broadcast 172.21.20
7.255
        inet6 fe80::215:5dff:fe60:194f  prefixlen 64  scopeid 0x20<link
>
        ether 00:15:5d:60:19:4f  txqueuelen 1000  (Ethernet)
        RX packets 411  bytes 264544 (264.5 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 113  bytes 8064 (8.0 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 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

ping: mostra a latência para conectar com algum servidor

```
vitor@ASUS-Vitor:~$ ping www.globo.com
PING home.cache.aws.cloud.globo (186.192.81.5) 56(84) bytes of data.
64 bytes from 186-192-81-5.prt.globo.com (186.192.81.5): icmp_seq=1 ttl
=246 time=17.2 ms
64 bytes from 186-192-81-5.prt.globo.com (186.192.81.5): icmp_seq=2 ttl
=246 time=16.9 ms
64 bytes from 186-192-81-5.prt.globo.com (186.192.81.5): icmp_seq=3 ttl
=246 time=49.6 ms
64 bytes from 186-192-81-5.prt.globo.com (186.192.81.5): icmp_seq=4 ttl
=246 time=18.3 ms
64 bytes from 186-192-81-5.prt.globo.com (186.192.81.5): icmp_seq=5 ttl
=246 time=17.2 ms
64 bytes from 186-192-81-5.prt.globo.com (186.192.81.5): icmp_seq=6 ttl
=246 time=17.1 ms
64 bytes from 186-192-81-5.prt.globo.com (186.192.81.5): icmp_seq=7 ttl
=246 time=18.1 ms
```

host: descobre o endereço de IP de um determinado servidor

```
vitor@ASUS-Vitor:~$ host www.globo.com
www.globo.com is an alias for home.cache.aws.cloud.globo.
home.cache.aws.cloud.globo has address 186.192.81.5
```

dig: Infos de domínios

```
vitor@ASUS-Vitor:~$ dig www.globo.com

; <<>> DiG 9.16.1-Ubuntu <<>> www.globo.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 54151
;; flags: qr rd ad; QUERY: 1, ANSWER: 2, AUTHORITY: 0, ADDITIONAL: 0
;; WARNING: recursion requested but not available

;; QUESTION SECTION:
;www.globo.com.                 IN      A

;; ANSWER SECTION:
www.globo.com.          0       IN      CNAME   home.cache.aws.cloud.gl
obo.
home.cache.aws.cloud.globo. 0   IN      A       186.192.81.5

;; Query time: 10 msec
;; SERVER: 172.21.192.1#53(172.21.192.1)
;; WHEN: Sat Dec 24 11:33:21 -03 2022
;; MSG SIZE  rcvd: 126
```

nslookup: mais informações de domínios

```
vitor@ASUS-Vitor:~$ nslookup www.globo.com
Server:         172.21.192.1
Address:        172.21.192.1#53

Non-authoritative answer:
www.globo.com   canonical name = home.cache.aws.cloud.globo.
Name:   home.cache.aws.cloud.globo
Address: 186.192.81.5
```

traceroute: Exibe os caminhos do servidor até um destino.

```
vitor@ASUS-Vitor:~$ sudo apt install traceroute
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  traceroute
0 upgraded, 1 newly installed, 0 to remove and 202 not upgraded.
Need to get 45.4 kB of archives.
After this operation, 152 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/universe amd64 traceroute amd64 1:2
.1.0-2 [45.4 kB]
Fetched 45.4 kB in 1s (46.5 kB/s)
Selecting previously unselected package traceroute.
(Reading database ... 39239 files and directories currently installed.)Preparing
 to unpack .../traceroute_1%3a2.1.0-2_amd64.deb ...
Unpacking traceroute (1:2.1.0-2) ...
Setting up traceroute (1:2.1.0-2) ...
update-alternatives: using /usr/bin/traceroute.db to provide /usr/bin/traceroute
 (traceroute) in auto mode
update-alternatives: using /usr/bin/lft.db to provide /usr/bin/lft (lft) in auto
 mode
update-alternatives: using /usr/bin/traceproto.db to provide /usr/bin/traceproto
 (traceproto) in auto mode
update-alternatives: using /usr/sbin/tcptraceroute.db to provide /usr/sbin/tcptr
aceroute (tcptraceroute) in auto mode
Processing triggers for man-db (2.9.1-1) ...
vitor@ASUS-Vitor:~$ traceroute www.globo.com
traceroute to www.globo.com (186.192.81.5), 30 hops max, 60 byte packets
 1  ASUS-Vitor.mshome.net (172.21.192.1)  0.301 ms  0.156 ms  0.261 ms
 2  GPT-2741GNAC-N2.GPT-2741GNAC-N2 (192.168.15.1)  4.715 ms  4.688 ms  4.664 ms

 3  * * *
 4  201-1-224-46.dsl.telesp.net.br (201.1.224.46)  12.714 ms 201-1-224-48.dsl.te
lesp.net.br (201.1.224.48)  12.753 ms  12.747 ms
 5  152-255-158-37.user.vivozap.com.br (152.255.158.37)  21.874 ms  21.860 ms  2
1.856 ms
```

tracepath: simplificação do comando anterior

```
vitor@ASUS-Vitor:~$ tracepath www.globo.com
 1?: [LOCALHOST]                      pmtu 1500
 1:  ASUS-Vitor.mshome.net                                 0.285ms
 1:  ASUS-Vitor.mshome.net                                 0.278ms
 2:  GPT-2741GNAC-N2.GPT-2741GNAC-N2                       4.059ms
 3:  GPT-2741GNAC-N2.GPT-2741GNAC-N2                       4.275ms pmtu 1492
```

netstat: Ferramentas para administrar redes

```
vitor@ASUS-Vitor:~$ netstat -s
Ip:
    Forwarding: 2
    419 total packets received
    0 forwarded
    30 with unknown protocol
    0 incoming packets discarded
    185 incoming packets delivered
    238 requests sent out
Icmp:
    26 ICMP messages received
    0 input ICMP message failed
    ICMP input histogram:
        destination unreachable: 1
        timeout in transit: 15
        echo replies: 10
    10 ICMP messages sent
    0 ICMP messages failed
    ICMP output histogram:
        echo requests: 10
IcmpMsg:
        InType0: 10
        InType3: 1
        InType11: 15
        OutType8: 10
Tcp:
    3 active connection openings
    0 passive connection openings
    0 failed connection attempts
    0 connection resets received
    0 connections established
    92 segments received
    98 segments sent out
    0 segments retransmitted
    0 bad segments received
    0 resets sent
Udp:
    38 packets received
```

nmap: exibe as portas abertas de um determinado servidor

```
vitor@ASUS-Vitor:~$ nmap www.globo.com
Starting Nmap 7.80 ( https://nmap.org ) at 2022-12-24 11:38 -03
Nmap scan report for www.globo.com (186.192.81.5)
Host is up (0.020s latency).
rDNS record for 186.192.81.5: 186-192-81-5.prt.globo.com
Not shown: 998 filtered ports
PORT    STATE SERVICE
80/tcp  open  http
443/tcp open  https

Nmap done: 1 IP address (1 host up) scanned in 4.03 seconds
```

route: Exibe rotas de roteamento.

```
vitor@ASUS-Vitor:~$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         ASUS-Vitor.msho 0.0.0.0         UG    0      0        0 eth0
172.21.192.0    0.0.0.0         255.255.240.0   U     0      0        0 eth0
```

tcpdump: Sniffer de rede

```
vitor@ASUS-Vitor:~$ tcpump
```

lynx: Navegador simplificado no próprio terminal

```
vitor@ASUS-Vitor:~$ lynx www.globo.com
```

Capítulo 10 -Gerenciamento de Pacotes

apt update: atualiza pacotes

```
vitor@ASUS-Vitor:~$ sudo apt update
Get:1 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Hit:2 http://archive.ubuntu.com/ubuntu focal InRelease
Get:3 http://archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:4 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [1895
 kB]
Get:5 http://archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Get:6 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [2269 k
B]
Get:7 http://security.ubuntu.com/ubuntu focal-security/main Translation-en [311
kB]
Get:8 http://security.ubuntu.com/ubuntu focal-security/main amd64 c-n-f Metadata
 [11.5 kB]
Get:9 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 Packages
 [1385 kB]
Get:10 http://security.ubuntu.com/ubuntu focal-security/restricted Translation-e
n [195 kB]
Get:11 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 c-n-f M
etadata [596 B]
Get:12 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages
[778 kB]
Get:13 http://security.ubuntu.com/ubuntu focal-security/universe Translation-en
[150 kB]
Get:14 http://security.ubuntu.com/ubuntu focal-security/universe amd64 c-n-f Met
adata [16.8 kB]
Get:15 http://archive.ubuntu.com/ubuntu focal-updates/main Translation-en [395 k
B]
Get:16 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 Package
s [22.2 kB]
Get:17 http://security.ubuntu.com/ubuntu focal-security/multiverse Translation-e
n [5464 B]
Get:18 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 c-n-f M
etadata [516 B]
Get:19 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata
[16.1 kB]
Get:20 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages
```

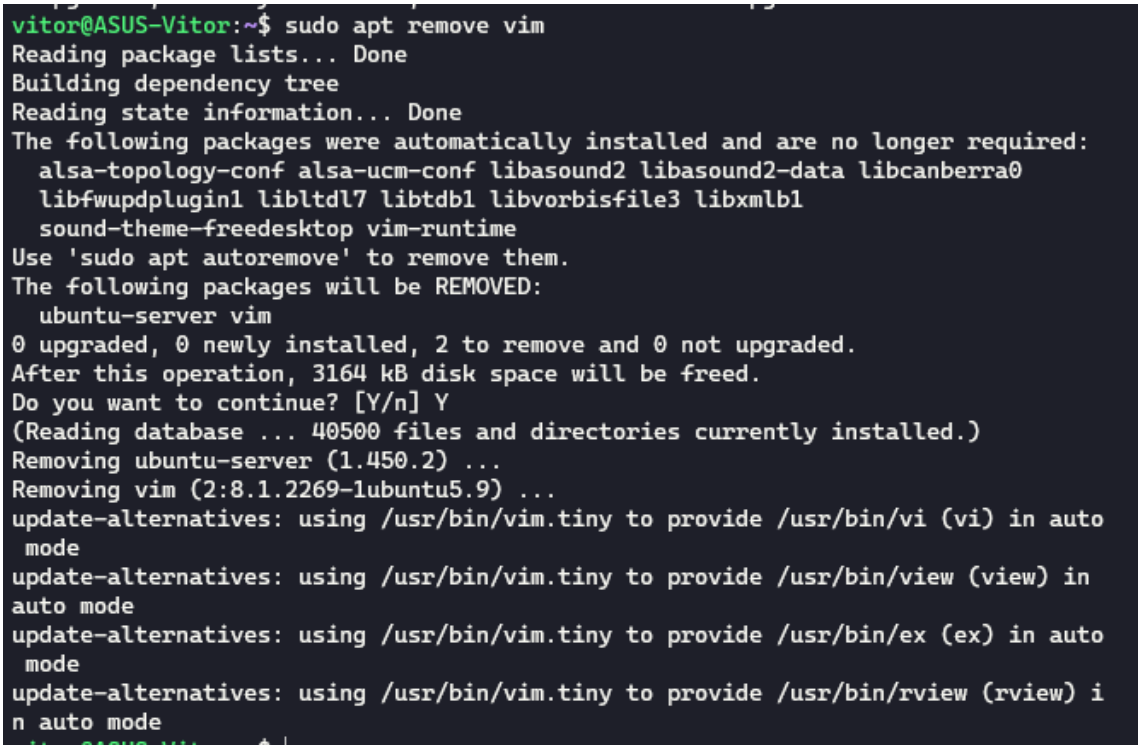
apt upgrade: atualiza pacotes do sistema

```
vitor@ASUS-Vitor:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following packages were automatically installed and are no longer required:
  libfwupdplugin1 libxmlb1
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  libfwupdplugin5 libmbim-glib4 libmbim-proxy libmm-glib0 libqmi-glib5
  libqmi-proxy libxmlb2 modemmanager usb-modeswitch usb-modeswitch-data
The following packages will be upgraded:
  alsa-ucm-conf apport apt apt-utils base-files bash bind9-dnsutils bind9-host
  bind9-libs binutils binutils-common binutils-x86-64-linux-gnu bolt bsdutils
  ca-certificates cloud-init command-not-found cpp-9 cryptsetup cryptsetup-bin
  cryptsetup-initramfs cryptsetup-run curl dbus dbus-user-session dbus-x11
  dirmngr distro-info-data dpkg dpkg-dev e2fsprogs fdisk fwupd fwupd-signed
  g++-9 gcc-9 gcc-9-base git git-man gnupg gnupg-l10n gnupg-utils gpg
  gpg-agent gpg-wks-client gpg-wks-server gpgconf gpgsm gpgv gzip
  initramfs-tools initramfs-tools-bin initramfs-tools-core isc-dhcp-client
  isc-dhcp-common klibc-utils kmod kpartx landscape-common libapt-pkg6.0
  libarchive13 libasan5 libasn1-8-heimdal libbinutils libblkid1 libc-bin
  libc-dev-bin libc6 libc6-dev libcom-err2 libcryptsetup12 libctf-nobfd0
  libctf0 libcurl3-gnutls libcurl4 libdbus-1-3 libdpkg-perl libdrm-amdgpu1
  libdrm-common libdrm-intel1 libdrm-nouveau2 libdrm-radeon1 libdrm2 libexpat1
  libexpat1-dev libext2fs2 libfdisk1 libflac8 libfreetype6 libfribidi0
  libfwupd2 libgcc-9-dev libgl1 libgl1-mesa-dri libglapi-mesa libglvnd0
  libglx-mesa0 libglx0 libgmp10 libgnutls30 libgssapi3-heimdal
  libgstreamer1.0-0 libhcrypto4-heimdal libheimbase1-heimdal
  libheimntlm0-heimdal libhx509-5-heimdal libjcat1 libkeyutils1 libklibc
  libkmod2 libkrb5-26-heimdal libksba8 libldap-2.4-2 libldap-common libllvm12
  liblzma5 libmount1 libnetplan0 libnss-systemd libnss3 libntfs-3g883
  libpam-systemd libpcre2-8-0 libpcre3 libperl5.30 libpolkit-agent-1-0
  libpolkit-gobject-1-0 libpython2.7-minimal libpython2.7-stdlib libpython3.8
```

apt install: instalador de pacotes, no caso o vim

```
vitor@ASUS-Vitor:~$ sudo apt install vim
Reading package lists... Done
Building dependency tree
Reading state information... Done
vim is already the newest version (2:8.1.2269-1ubuntu5.9).
vim set to manually installed.
The following packages were automatically installed and are no longer required:
  libfwupdplugin1 libxmlb1
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
```

apt remove: deleta um pacote, no caso o vim que acabamos de instalar



Capítulo 14 - Verificando Configuração de Hardware e Software

uname: Informações da distribuição

```
vitor@ASUS-Vitor:~$ uname -a
Linux ASUS-Vitor 5.10.16.3-microsoft-standard-WSL2 #1 SMP Fri Apr 2 22:23:49 UTC
 2021 x86_64 x86_64 x86_64 GNU/Linux
```

lscpu: Informações sobre processos

```
vitor@ASUS-Vitor:~$ lscpu
Architecture:                    x86_64
CPU op-mode(s):                  32-bit, 64-bit
Byte Order:                      Little Endian
Address sizes:                   39 bits physical, 48 bits virtual
CPU(s):                          8
On-line CPU(s) list:             0-7
Thread(s) per core:              2
Core(s) per socket:              4
Socket(s):                       1
Vendor ID:                       GenuineIntel
CPU family:                      6
Model:                           142
Model name:                      Intel(R) Core(TM) i5-8265U CPU @ 1.60GHz
Stepping:                        12
CPU MHz:                         1800.005
BogoMIPS:                        3600.01
Virtualization:                  VT-x
Hypervisor vendor:               Microsoft
Virtualization type:             full
L1d cache:                       128 KiB
L1i cache:                       128 KiB
L2 cache:                        1 MiB
L3 cache:                        6 MiB
Vulnerability Itlb multihit:     KVM: Mitigation: VMX disabled
Vulnerability L1tf:              Not affected
Vulnerability Mds:               Not affected
Vulnerability Meltdown:          Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled v
                                 ia prctl and seccomp
Vulnerability Spectre v1:        Mitigation; usercopy/swapgs barriers and __user
                                  pointer sanitization
Vulnerability Spectre v2:        Mitigation; Enhanced IBRS, IBPB conditional, RS
                                 B filling
Vulnerability Srbds:             Mitigation; TSX disabled
```

lsusb: Informações de portas USB

```
vitor@ASUS-Vitor:~$ lsusb
```

Lspci: Informações de portas PCI.

```
vitor@ASUS-Vitor:~$ lspci
4878:00:00.0 SCSI storage controller: Red Hat, Inc. Virtio filesystem (rev 01)
55f6:00:00.0 SCSI storage controller: Red Hat, Inc. Virtio filesystem (rev 01)
62b0:00:00.0 System peripheral: Red Hat, Inc. Device 105a (rev 01)
6f3d:00:00.0 SCSI storage controller: Red Hat, Inc. Virtio filesystem (rev 01)
9962:00:00.0 SCSI storage controller: Red Hat, Inc. Virtio filesystem (rev 01)
9e06:00:00.0 SCSI storage controller: Red Hat, Inc. Virtio console (rev 01)
b6d3:00:00.0 3D controller: Microsoft Corporation Device 008e
b89f:00:00.0 SCSI storage controller: Red Hat, Inc. Virtio filesystem (rev 01)
d9a0:00:00.0 3D controller: Microsoft Corporation Device 008e
e03e:00:00.0 SCSI storage controller: Red Hat, Inc. Virtio filesystem (rev 01)
ec02:00:00.0 SCSI storage controller: Red Hat, Inc. Virtio filesystem (rev 01)
```

htop: Informações de memória

```
  1  [                          0.0%]   5  [                          0.0%]
  2  [                          0.0%]   6  [                          0.0%]
  3  [                          0.0%]   7  [|                         0.6%]
  4  [                          0.0%]   8  [                          0.0%]
  Mem[||||||||||||||||     290M/3.76G]   Tasks: 5, 2 thr; 1 running
  Swp[                       0K/1.00G]   Load average: 0.03 0.18 0.10
                                         Uptime: 01:20:35

  PID USER      PRI  NI  VIRT   RES   SHR S CPU% MEM%   TIME+  Command
    5 root       20   0  1828  1196  1108 S  0.0  0.0  0:00.00 /init
    6 root       20   0  1828  1196  1108 S  0.0  0.0  0:00.00 /init
    1 root       20   0  1828  1196  1108 S  0.0  0.0  0:00.05 /init
   85 root       20   0  1824    92     0 S  0.0  0.0  0:00.00 /init
   86 root       20   0  1824   108     0 S  0.0  0.0  0:00.33 /init
   87 vitor      20   0 10056  5156  3376 S  0.0  0.1  0:00.50 -bash
19572 vitor      20   0  8144  3660  3056 R  0.0  0.1  0:00.00 htop

F1Help  F2Setup  F3SearchF4FilterF5Tree  F6SortByF7Nice -F8Nice +F9Kill  F10Quit
```

hwinfo: utilizado para listar informações sobre todos os dispositivos de Hardware de seu computador.

```
vitor@ASUS-Vitor:~$ hwinfo
============ start debug info ============
libhd version 21.68u (x86-64) [7688]
using /var/lib/hardware
kernel version is 5.10
----- /proc/cmdline -----
  initrd=\initrd.img panic=-1 nr_cpus=8 swiotlb=force earlycon=uart8250,io,0x3f8
,115200 console=hvc0 debug pty.legacy_count=0
----- /proc/cmdline end -----
debug = 0xff7ffff7
probe = 0x15938fcdaa17fcf9fffe (+memory +pci +isapnp +net +floppy +misc +misc.se
rial +misc.par +misc.floppy +serial +cpu +bios +monitor +mouse +scsi +usb -usb.m
ods +modem +modem.usb +parallel +parallel.lp +parallel.zip -isa -isa.isdn +isdn
+kbd +prom +sbus +int +braille +braille.alva +braille.fhp +braille.ht -ignx11 +s
ys -bios.vbe -isapnp.old -isapnp.new -isapnp.mod +braille.baum -manual +fb +pppo
e -scan +pcmcia +fork -parallel.imm +s390 +cpuemu -sysfs -s390disks +udev +block
 +block.cdrom +block.part +edd +edd.mod -bios.ddc -bios.fb -bios.mode +input +bl
ock.mods +bios.vesa -cpuemu.debug -scsi.noserial +wlan -bios.crc -hal +bios.vram
 +bios.acpi -bios.ddc.ports=0 +modules.pata -net.eeprom +x86emu=dump -max -lxrc)
shm: attached segment 0 at 0x7fbed3a33000
>> hal.1: read hal data
>> floppy.1: get nvram
----- /proc/nvram -----
  Checksum status: valid
  # floppies     : 1
  Floppy 0 type  : 3.5'' 1.44M
  Floppy 1 type  : none
  HD 0 type      : none
  HD 1 type      : none
  HD type 48 data: 0/0/48 C/H/S, precomp 0, lz 0
  HD type 49 data: 0/0/0 C/H/S, precomp 0, lz 34320
  DOS base memory: 640 kB
  Extended memory: 3967 kB (configured), 0 kB (tested)
  Gfx adapter    : CGA (40 cols)
  FPU            : installed
```