ATIVIDADE DE SISTEMAS OPERACIONAIS DE REDE II

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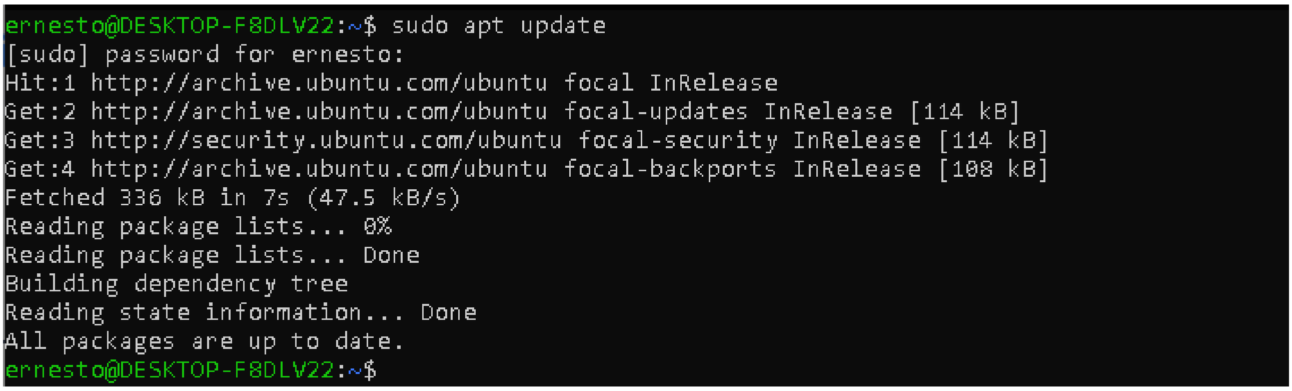
Período: P8

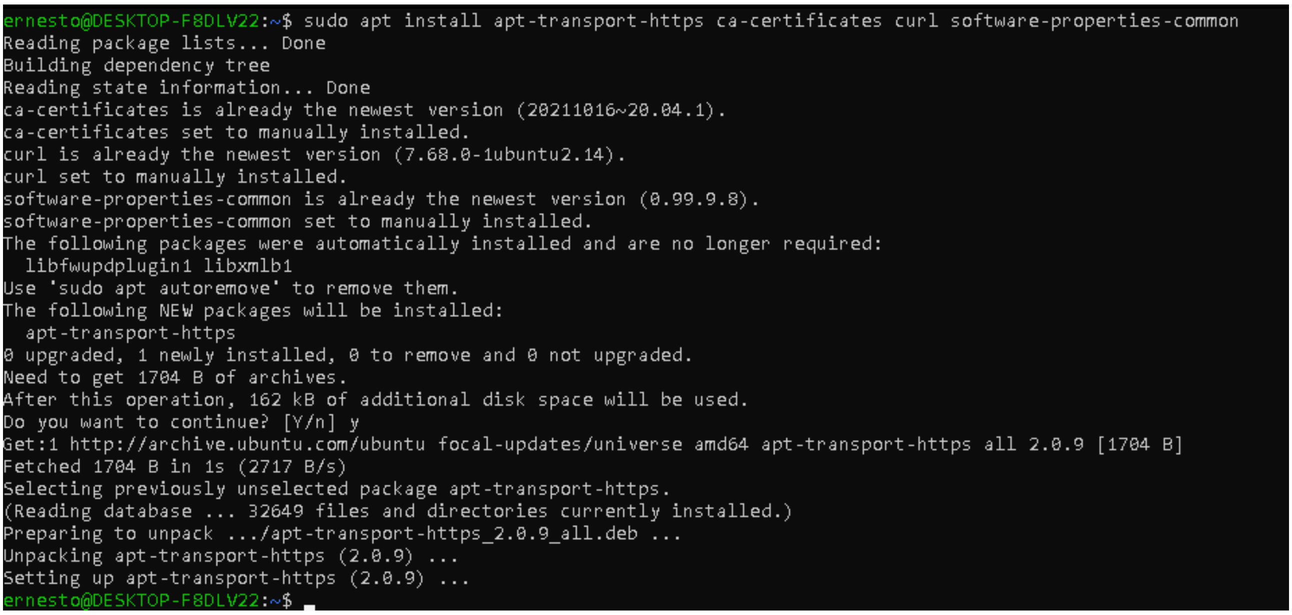
PASSO 1 – INSTALANDO O DOCKER

- SUDO APT UPDATE:



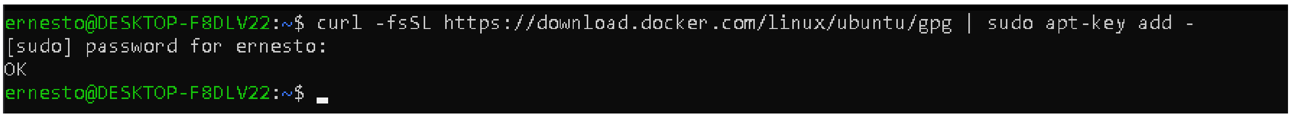
```
ernesto@DESKTOP-F8DLV22:~$ sudo apt update
[sudo] password for ernesto:
Hit:1 http://archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:3 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Fetched 336 kB in 7s (47.5 kB/s)
Reading package lists... 0%
Reading package lists... Done
Building dependency tree
Reading state information... Done
All packages are up to date.
ernesto@DESKTOP-F8DLV22:~$
```

- INSTALANDO PACOTES NECESSÁRIOS:



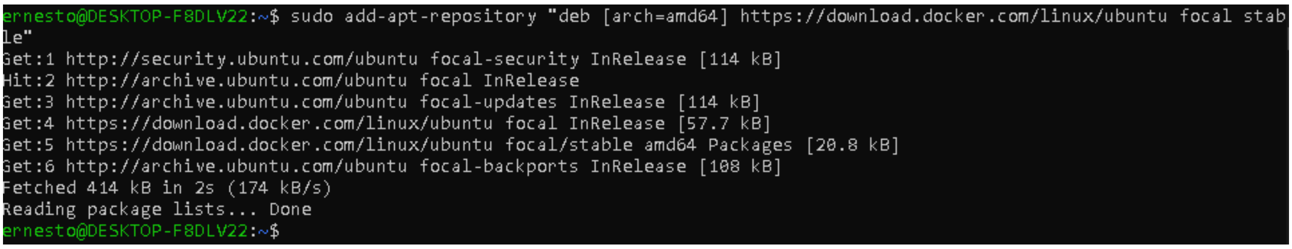
```
ernesto@DESKTOP-F8DLV22:~$ sudo apt install apt-transport-https ca-certificates curl software-properties-common
Reading package lists... Done
Building dependency tree
Reading state information... Done
ca-certificates is already the newest version (20211016~20.04.1).
ca-certificates set to manually installed.
curl is already the newest version (7.68.0-1ubuntu2.14).
curl set to manually installed.
software-properties-common is already the newest version (0.99.9.8).
software-properties-common set to manually installed.
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:
  apt-transport-https
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 1704 B of archives.
After this operation, 162 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 apt-transport-https all 2.0.9 [1704 B]
Fetched 1704 B in 1s (2717 B/s)
Selecting previously unselected package apt-transport-https.
(Reading database ... 32649 files and directories currently installed.)
Preparing to unpack .../apt-transport-https_2.0.9_all.deb ...
Unpacking apt-transport-https (2.0.9) ...
Setting up apt-transport-https (2.0.9) ...
ernesto@DESKTOP-F8DLV22:~$
```

- ADICIONANDO A CHAVE GPG:



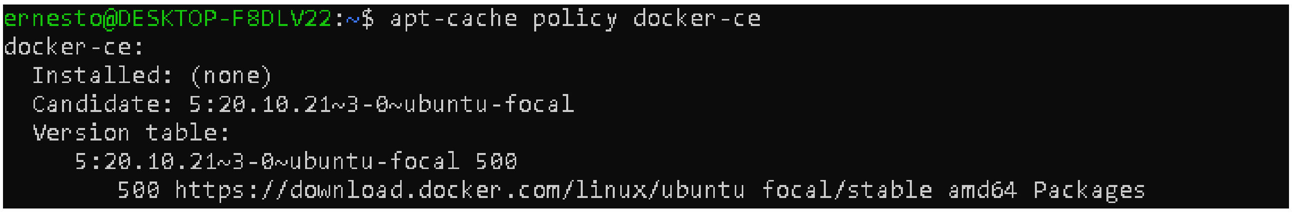
```
ernesto@DESKTOP-F8DLV22:~$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
[sudo] password for ernesto:
OK
ernesto@DESKTOP-F8DLV22:~$
```

- ADICIONANDO O REPOSITÓRIO DOCKER NAS FONTES APT:



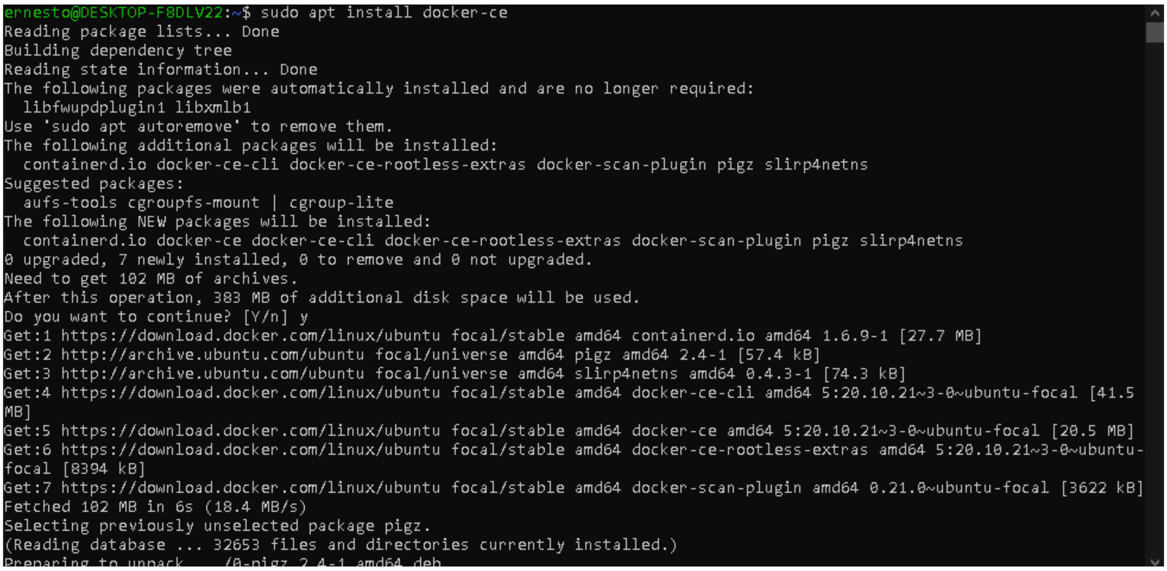
```
ernesto@DESKTOP-F8DLV22:~$ sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu focal stab
le"
Get:1 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Hit:2 http://archive.ubuntu.com/ubuntu focal InRelease
Get:3 http://archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:4 https://download.docker.com/linux/ubuntu focal InRelease [57.7 kB]
Get:5 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages [20.8 kB]
Get:6 http://archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Fetched 414 kB in 2s (174 kB/s)
Reading package lists... Done
ernesto@DESKTOP-F8DLV22:~$
```

- VERIFICANDO A INSTALAÇÃO:

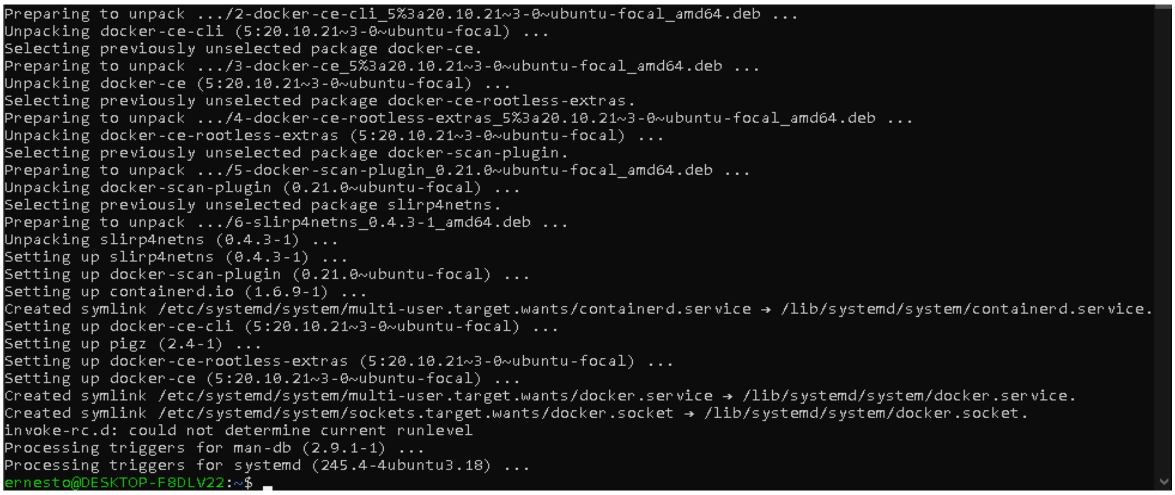


```
ernesto@DESKTOP-F8DLV22:~$ apt-cache policy docker-ce
docker-ce:
  Installed: (none)
  Candidate: 5:20.10.21~3-0~ubuntu-focal
  Version table:
     5:20.10.21~3-0~ubuntu-focal 500
        500 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages
```

- INSTALANDO O DOCKER:

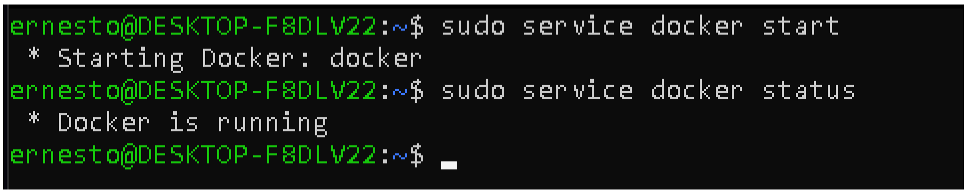


```
ernesto@DESKTOP-F8DLV22:~$ sudo apt install docker-ce
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libfwupdplugin1 libxmlb1
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  containerd.io docker-ce-cli docker-ce-rootless-extras docker-scan-plugin pigz slirp4netns
Suggested packages:
  aufs-tools cgroupfs-mount | cgroup-lite
The following NEW packages will be installed:
  containerd.io docker-ce docker-ce-cli docker-ce-rootless-extras docker-scan-plugin pigz slirp4netns
0 upgraded, 7 newly installed, 0 to remove and 0 not upgraded.
Need to get 102 MB of archives.
After this operation, 383 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 https://download.docker.com/linux/ubuntu focal/stable amd64 containerd.io amd64 1.6.9-1 [27.7 MB]
Get:2 http://archive.ubuntu.com/ubuntu focal/universe amd64 pigz amd64 2.4-1 [57.4 kB]
Get:3 http://archive.ubuntu.com/ubuntu focal/universe amd64 slirp4netns amd64 0.4.3-1 [74.3 kB]
Get:4 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-ce-cli amd64 5:20.10.21~3-0~ubuntu-focal [41.5
MB]
Get:5 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-ce amd64 5:20.10.21~3-0~ubuntu-focal [20.5 MB]
Get:6 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-ce-rootless-extras amd64 5:20.10.21~3-0~ubuntu-
focal [8394 kB]
Get:7 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-scan-plugin amd64 0.21.0~ubuntu-focal [3622 kB]
Fetched 102 MB in 6s (18.4 MB/s)
Selecting previously unselected package pigz.
(Reading database ... 32653 files and directories currently installed.)
Preparing to unpack .../0-pigz_2.4-1_amd64.deb
```



```
Preparing to unpack .../2-docker-ce-cli_5%3a20.10.21~3-0~ubuntu-focal_amd64.deb ...
Unpacking docker-ce-cli (5:20.10.21~3-0~ubuntu-focal) ...
Selecting previously unselected package docker-ce.
Preparing to unpack .../3-docker-ce_5%3a20.10.21~3-0~ubuntu-focal_amd64.deb ...
Unpacking docker-ce (5:20.10.21~3-0~ubuntu-focal) ...
Selecting previously unselected package docker-ce-rootless-extras.
Preparing to unpack .../4-docker-ce-rootless-extras_5%3a20.10.21~3-0~ubuntu-focal_amd64.deb ...
Unpacking docker-ce-rootless-extras (5:20.10.21~3-0~ubuntu-focal) ...
Selecting previously unselected package docker-scan-plugin.
Preparing to unpack .../5-docker-scan-plugin_0.21.0~ubuntu-focal_amd64.deb ...
Unpacking docker-scan-plugin (0.21.0~ubuntu-focal) ...
Selecting previously unselected package slirp4netns.
Preparing to unpack .../6-slirp4netns_0.4.3-1_amd64.deb ...
Unpacking slirp4netns (0.4.3-1) ...
Setting up slirp4netns (0.4.3-1) ...
Setting up docker-scan-plugin (0.21.0~ubuntu-focal) ...
Setting up containerd.io (1.6.9-1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service → /lib/systemd/system/containerd.service.
Setting up docker-ce-cli (5:20.10.21~3-0~ubuntu-focal) ...
Setting up pigz (2.4-1) ...
Setting up docker-ce-rootless-extras (5:20.10.21~3-0~ubuntu-focal) ...
Setting up docker-ce (5:20.10.21~3-0~ubuntu-focal) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/systemd/system/docker.socket.
invoke-rc.d: could not determine current runlevel
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for systemd (245.4-4ubuntu3.18) ...
ernesto@DESKTOP-F8DLV22:~$
```

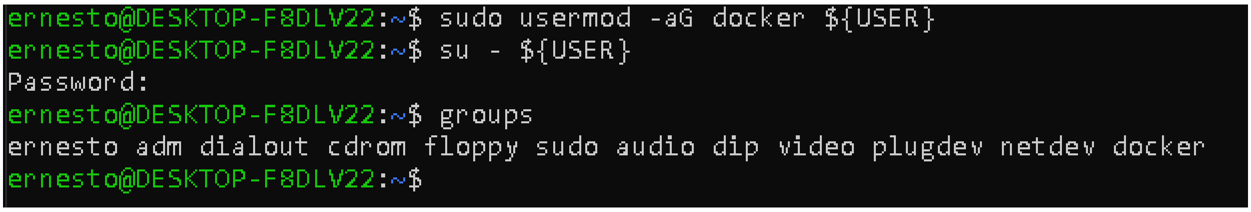
- INICIANDO E VERIFICANDO O DOCKER:



```
ernesto@DESKTOP-F8DLV22:~$ sudo service docker start
 * Starting Docker: docker
ernesto@DESKTOP-F8DLV22:~$ sudo service docker status
 * Docker is running
ernesto@DESKTOP-F8DLV22:~$
```

PASSO 2 – EXECUTANDO O COMANDO DOCKER SEM SUDO

- MODIFICANDO E VERIFICANDO SE O DOCKER ENTROU NO GRUPO:



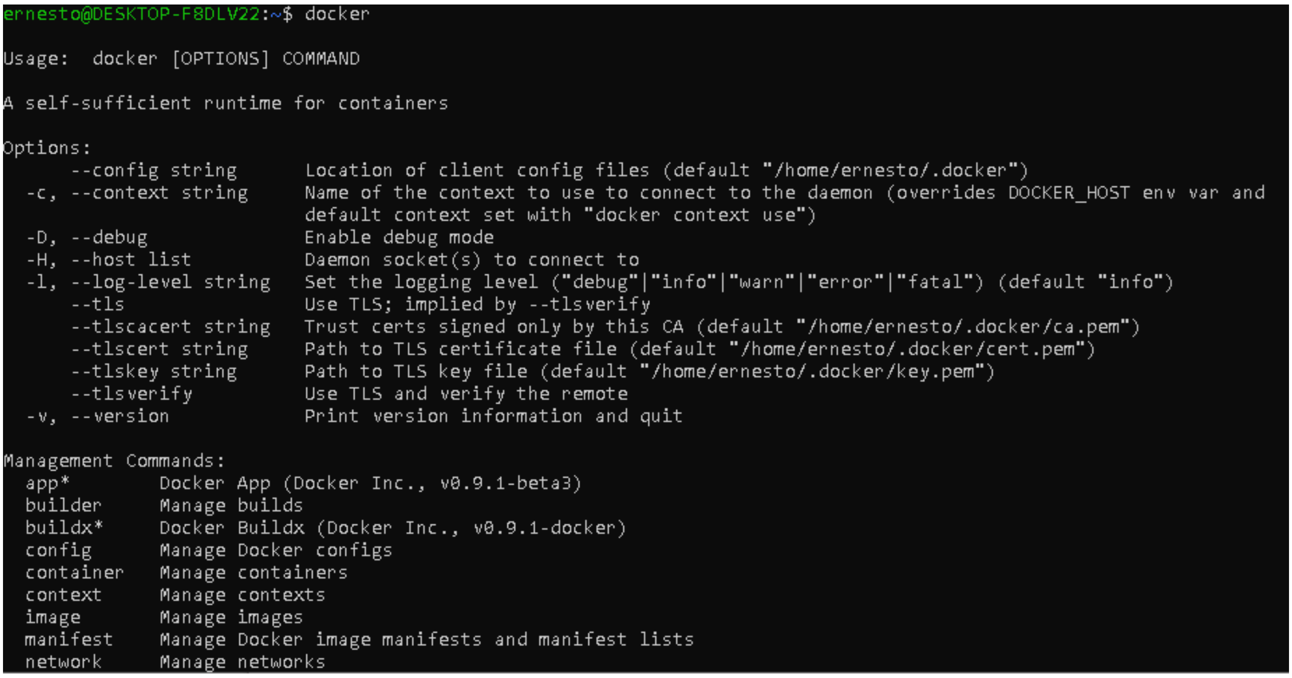
```
ernesto@DESKTOP-F8DLV22:~$ sudo usermod -aG docker ${USER}
ernesto@DESKTOP-F8DLV22:~$ su - ${USER}
Password:
ernesto@DESKTOP-F8DLV22:~$ groups
ernesto adm dialout cdrom floppy sudo audio dip video plugdev netdev docker
ernesto@DESKTOP-F8DLV22:~$
```

PASSO 3 – USANDO O COMANDO DOCKER

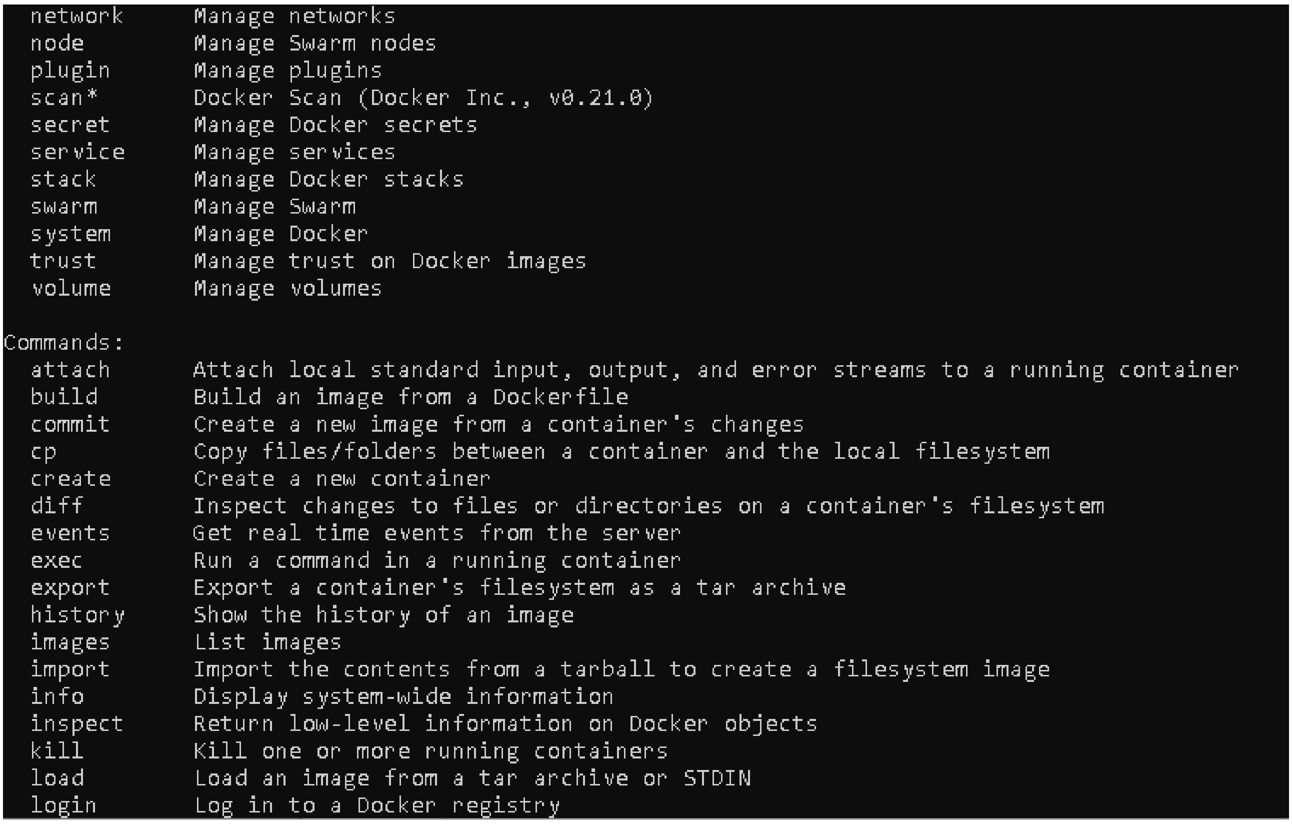
- SINTAXE:

$ docker [opção] [comando] [argumento]

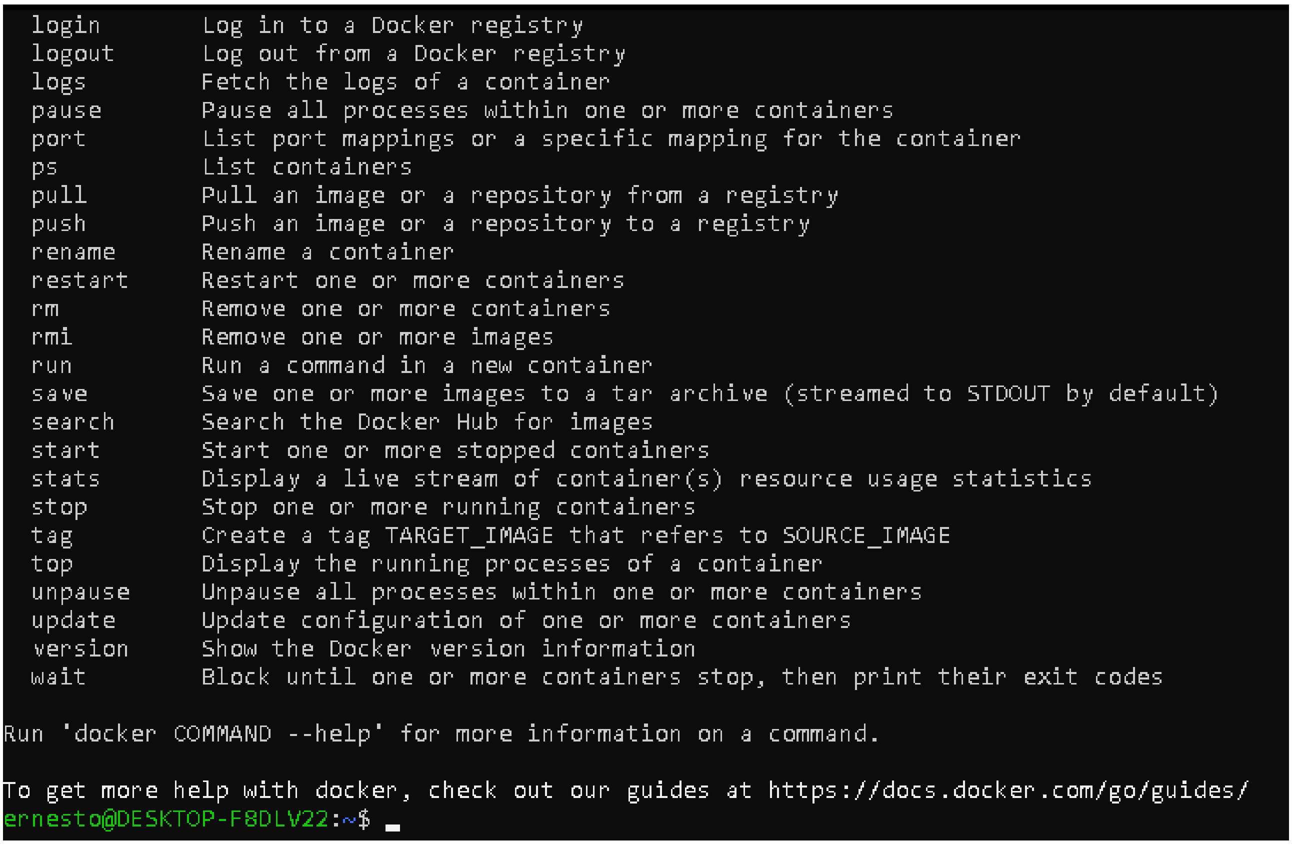
- VERIFICANDO TODOS OS SUBCOMANDOS:



```
ernesto@DESKTOP-F8DLV22:~$ docker

Usage:  docker [OPTIONS] COMMAND

A self-sufficient runtime for containers

Options:
      --config string      Location of client config files (default "/home/ernesto/.docker")
  -c, --context string     Name of the context to use to connect to the daemon (overrides DOCKER_HOST env var and
                           default context set with "docker context use")
  -D, --debug              Enable debug mode
  -H, --host list          Daemon socket(s) to connect to
  -l, --log-level string   Set the logging level ("debug"|"info"|"warn"|"error"|"fatal") (default "info")
      --tls                Use TLS; implied by --tlsverify
      --tlscacert string   Trust certs signed only by this CA (default "/home/ernesto/.docker/ca.pem")
      --tlscert string     Path to TLS certificate file (default "/home/ernesto/.docker/cert.pem")
      --tlskey string      Path to TLS key file (default "/home/ernesto/.docker/key.pem")
      --tlsverify          Use TLS and verify the remote
  -v, --version            Print version information and quit

Management Commands:
  app*        Docker App (Docker Inc., v0.9.1-beta3)
  builder     Manage builds
  buildx*     Docker Buildx (Docker Inc., v0.9.1-docker)
  config      Manage Docker configs
  container   Manage containers
  context     Manage contexts
  image       Manage images
  manifest    Manage Docker image manifests and manifest lists
  network     Manage networks
```



```
  network     Manage networks
  node        Manage Swarm nodes
  plugin      Manage plugins
  scan*       Docker Scan (Docker Inc., v0.21.0)
  secret      Manage Docker secrets
  service     Manage services
  stack       Manage Docker stacks
  swarm       Manage Swarm
  system      Manage Docker
  trust       Manage trust on Docker images
  volume      Manage volumes

Commands:
  attach      Attach local standard input, output, and error streams to a running container
  build       Build an image from a Dockerfile
  commit      Create a new image from a container's changes
  cp          Copy files/folders between a container and the local filesystem
  create      Create a new container
  diff        Inspect changes to files or directories on a container's filesystem
  events      Get real time events from the server
  exec        Run a command in a running container
  export      Export a container's filesystem as a tar archive
  history     Show the history of an image
  images      List images
  import      Import the contents from a tarball to create a filesystem image
  info        Display system-wide information
  inspect     Return low-level information on Docker objects
  kill        Kill one or more running containers
  load        Load an image from a tar archive or STDIN
  login       Log in to a Docker registry
```



```
  login       Log in to a Docker registry
  logout      Log out from a Docker registry
  logs        Fetch the logs of a container
  pause       Pause all processes within one or more containers
  port        List port mappings or a specific mapping for the container
  ps          List containers
  pull        Pull an image or a repository from a registry
  push        Push an image or a repository to a registry
  rename      Rename a container
  restart     Restart one or more containers
  rm          Remove one or more containers
  rmi         Remove one or more images
  run         Run a command in a new container
  save        Save one or more images to a tar archive (streamed to STDOUT by default)
  search      Search the Docker Hub for images
  start       Start one or more stopped containers
  stats       Display a live stream of container(s) resource usage statistics
  stop        Stop one or more running containers
  tag         Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE
  top         Display the running processes of a container
  unpause     Unpause all processes within one or more containers
  update      Update configuration of one or more containers
  version     Show the Docker version information
  wait        Block until one or more containers stop, then print their exit codes

Run 'docker COMMAND --help' for more information on a command.

To get more help with docker, check out our guides at https://docs.docker.com/go/guides/
ernesto@DESKTOP-F8DLV22:~$
```

- VERIFICANDO AS OPÇÕES HABILITADAS DE UM COMANDO ESPECÍFICO:

→ SINTAXE:

$ docker docker-subcomando –help

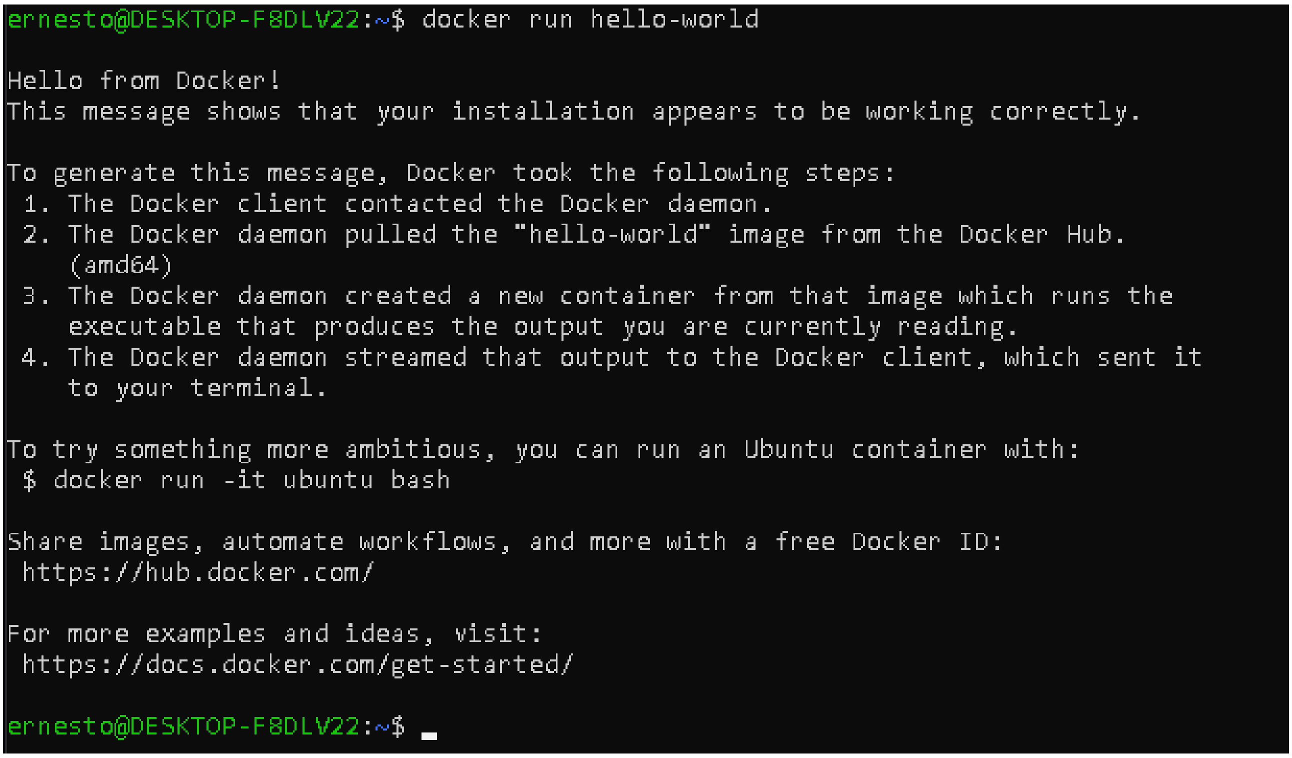
- EXIBINDO TODAS AS INFORMAÇÕES DO SISTEMA DOCKER:

→ SINTAXE:

$ docker info

PASSO 4 – TRABALHO COM IMAGENS DO DOCKER

- EXIBINDO O “HELLO WORLD”:



```
ernesto@DESKTOP-F8DLV22:~$ docker run hello-world

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (amd64)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
 $ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
 https://hub.docker.com/

For more examples and ideas, visit:
 https://docs.docker.com/get-started/

ernesto@DESKTOP-F8DLV22:~$ 
```