MKDOCS-V2

None

Jordi Cervera

None

Table of contents

1. Welcome to MkDocs

For full documentation visit mkdocs.org.

1.1 Commands

- `mkdocs new [dir-name]` - Create a new project.
- `mkdocs serve` - Start the live-reloading docs server.
- `mkdocs build` - Build the documentation site.
- `mkdocs -h` - Print help message and exit.

1.2 Project layout

```
mkdocs.yml    # The configuration file.
docs/
    index.md  # The documentation homepage.
    ...       # Other markdown pages, images and other files.
```

sdfsf

2. Primer trimestre

2.1 Introducció

Classe 1: Aplicacions i serveis

man init

```
alumne-jordi@alumne-jordi-VirtualBox:~$ man init
alumne-jordi@alumne-jordi-VirtualBox:~$
alumne-jordi@alumne-jordi-VirtualBox:~$ readlink -v /sbin/init
../lib/systemd/systemd
alumne-jordi@alumne-jordi-VirtualBox:~$
```

```
alumne-jordi@alumne-jordi-VirtualBox:~$ runlevel
N 5
```

```
alumne-jordi@alumne-jordi-VirtualBox:~$ ls -l /lib/systemd/system/runlevel*.targ
Ayuda
lrwxrwxrwx 1 root root 15 jul  2 16:04 /lib/systemd/system/runlevel0.target -> p
oweroff.target
lrwxrwxrwx 1 root root 13 jul  2 16:04 /lib/systemd/system/runlevel1.target -> r
escue.target
lrwxrwxrwx 1 root root 17 jul  2 16:04 /lib/systemd/system/runlevel2.target -> m
ulti-user.target
lrwxrwxrwx 1 root root 17 jul  2 16:04 /lib/systemd/system/runlevel3.target -> m
ulti-user.target
lrwxrwxrwx 1 root root 17 jul  2 16:04 /lib/systemd/system/runlevel4.target -> m
ulti-user.target
lrwxrwxrwx 1 root root 16 jul  2 16:04 /lib/systemd/system/runlevel5.target -> g
raphical.target
lrwxrwxrwx 1 root root 13 jul  2 16:04 /lib/systemd/system/runlevel6.target -> r
eboot.target
alumne-jordi@alumne-jordi-VirtualBox:~$
```

aqui dintre teinm scripts

```
alumne-jordi@alumne-jordi-VirtualBox:/etc/init.d$ ls
alsa-utils        dbus              plymouth-log       ufw
anacron           gdm3              procps             unattended-upgrades
apparmor          grub-common       rsync              uuidd
apport            kerneloops        saned              whoopsie
bluetooth         keyboard-setup.sh speech-dispatcher  x11-common
console-setup.sh  kmod              spice-vdagent
cron              openvpn           sssd
cups              plymouth          sysstat
alumne-jordi@alumne-jordi-VirtualBox:/etc/init.d$
```

ru levels

```
alumne-jordi@alumne-jordi-VirtualBox:/etc$ ls
adduser.conf              hdparm.conf           ppp
alsa                      host.conf             printcap
alternatives              hostname              profile
anacrontab                hosts                 profile.d
apg.conf                  hosts.allow           protocols
apm                       hosts.deny            pulse
apparmor                  hp                    python3
apparmor.d                ifplugd               python3.12
apport                    init                  rc0.d
apt                       init.d                rc1.d
avahi                     initramfs-tools       rc2.d
bash.bashrc               inputrc               rc3.d
bash_completion           insserv.conf.d        rc4.d
bindresvport.blacklist    ipp-usb               rc5.d
binfmt.d                  iproute2              rc6.d
bluetooth                 issue                 rcS.d
```

k0 apagar equip

```
alumne-jordi@alumne-jordi-VirtualBox:/etc$ cd rc0.d/
alumne-jordi@alumne-jordi-VirtualBox:/etc/rc0.d$ ls
K01alsa-utils   K01kerneloops   K01saned              K01sssd
K01bluetooth    K01openvpn      K01speech-dispatcher  K01unattended-upgrades
K01gdm3         K01plymouth     K01spice-vdagent      K01uuidd
alumne-jordi@alumne-jordi-VirtualBox:/etc/rc0.d$
```

anem al systemd/system

```
alumne-jordi@alumne-jordi-VirtualBox: /lib/systemd/system
rescue.target
rescue.target.wants
rpcbind.target
rsync.service
rsyslog.service
rtkit-daemon.service
runlevel0.target
runlevel1.target
runlevel2.target
runlevel3.target
runlevel4.target
runlevel5.target
runlevel6.target
```

si anem al etc/systemd/system trobarem els mateixos fitxer pero duplicats

aixo vol dir que al lib es troben els fitxer de la configuracio original

```
alumne-jordi@alumne-jordi-VirtualBox:/etc/systemd/system$ systemctl list-units -
-type=target
  UNIT                   LOAD   ACTIVE SUB    DESCRIPTION                      >
  basic.target           loaded active active Basic System
  cryptsetup.target      loaded active active Local Encrypted Volumes
  getty-pre.target       loaded active active Preparation for Logins
  getty.target           loaded active active Login Prompts
  graphical.target       loaded active active Graphical Interface
  integritysetup.target  loaded active active Local Integrity Protected Volumes
```

VBox_GAs_7.2.2

```
alumne-jordi@alumne-jordi-VirtualBox:/etc/systemd/system$ systemctl list-units -
-type=service
  UNIT                                LOAD   ACTIVE SUB     DESCRIPTION    >
  accounts-daemon.service             loaded active running Accounts Servi>
  alsa-restore.service                loaded active exited  Save/Restore S>
  apparmor.service                    loaded active exited  Load AppArmor  >
  apport.service                      loaded active exited  automatic cras>
  avahi-daemon.service                loaded active running Avahi mDNS/DNS>
  colord.service                      loaded active running Manage, Instal>
```

```
alumne-jordi@alumne-jordi-VirtualBox:/etc/systemd/system$ systemctl list-depende
ncies graphical.target
graphical.target
● ├─accounts-daemon.service
● ├─gdm.service
● ├─gnome-remote-desktop.service
● ├─power-profiles-daemon.service
● ├─switcheroo-control.service
○ ├─systemd-update-utmp-runlevel.service
● ├─udisks2.service
● └─multi-user.target
○   ├─anacron.service
●   ├─apport.service
●   ├─avahi-daemon.service
●   ├─console-setup.service
●   ├─cron.service
●   ├─cups-browsed.service
●   ├─cups.path
●   ├─cups.service
●   ├─dbus.service
```

Graphical user depen de basic-target

```
alumne-jordi@alumne-jordi-VirtualBox:/lib/systemd/system/graphical.target.wants$
 ls -l
total 0
lrwxrwxrwx 1 root root 39 jul  2 16:04 systemd-update-utmp-runlevel.service -> .
./systemd-update-utmp-runlevel.service
alumne-jordi@alumne-jordi-VirtualBox:/lib/systemd/system/graphical.target.wants$
```

cron apareix dins del etc

```
umne-jordi@alumne-jordi-VirtualBox:/lib/systemd/system$ ls /etc/systemd/system/*.wants/cr
.service
tc/systemd/system/multi-user.target.wants/cron.service
umne-jordi@alumne-jordi-VirtualBox:/lib/systemd/system$
```

per a canviar de forma temporal un target: systemctl isolate rescue.target

ara de forma permanent

```
root@alumne-jordi-VirtualBox:/lib/systemd/system# ls -l | grep default
lrwxrwxrwx 1 root root   16 jul  2 16:04 default.target -> graphical.target
root@alumne-jordi-VirtualBox:/lib/systemd/system#
```

```
root@alumne-jordi-VirtualBox:/lib/systemd/system# rm default.target
root@alumne-jordi-VirtualBox:/lib/systemd/system# ln -s rescue.target default.ta
rget
root@alumne-jordi-VirtualBox:/lib/systemd/system# ls -l | grep default
lrwxrwxrwx 1 root root   13 sep 17 19:45 default.target -> rescue.target
root@alumne-jordi-VirtualBox:/lib/systemd/system#
```

cd /lib/systemd/system

rm default.target
i tornet a fer el target: ln -s graphical.target default.target

```
root@alumne-jordi-VirtualBox:/home/alumne-jordi# systemctl status ssh
○ ssh.service - OpenBSD Secure Shell server
     Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: ena>
     Active: inactive (dead)
TriggeredBy: ● ssh.socket
       Docs: man:sshd(8)
             man:sshd_config(5)
lines 1-6/6 (END)
```

```
root@alumne-jordi-VirtualBox:/home/alumne-jordi# ls /etc/systemd/system/*.wants/
ssh*
/etc/systemd/system/sockets.target.wants/ssh.socket
root@alumne-jordi-VirtualBox:/home/alumne-jordi#
```

mirar si esta el cron encès

```
root@alumne-jordi-VirtualBox:/# ls /etc/systemd/system/*.wants/cron.service
/etc/systemd/system/multi-user.target.wants/cron.service
root@alumne-jordi-VirtualBox:/# cd /etc/systemd/system/multi-user.target.wants/
root@alumne-jordi-VirtualBox:/etc/systemd/system/multi-user.target.wants# ls -l
| grep cron
lrwxrwxrwx 1 root root 39 ago  5 18:51 anacron.service -> /usr/lib/systemd/syste
m/anacron.service
lrwxrwxrwx 1 root root 36 ago  5 18:48 cron.service -> /usr/lib/systemd/system/c
ron.service
root@alumne-jordi-VirtualBox:/etc/systemd/system/multi-user.target.wants#
root@alumne-jordi-VirtualBox:/etc/systemd/system/multi-user.target.wants# system
ctl is-enabled cron
enabled
root@alumne-jordi-VirtualBox:/etc/systemd/system/multi-user.target.wants# system
ctl is-enabled ssh
disabled
root@alumne-jordi-VirtualBox:/etc/systemd/system/multi-user.target.wants#
```

ara farem que estigue apagat el cron i engegat el ssh mitjançan un enllaç

```
root@alumne-jordi-VirtualBox:/etc/systemd/system/multi-user.target.wants# system
ctl disable cron
Synchronizing state of cron.service with SysV service script with /usr/lib/syste
md/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install disable cron
Removed "/etc/systemd/system/multi-user.target.wants/cron.service".
root@alumne-jordi-VirtualBox:/etc/systemd/system/multi-user.target.wants#
```

```
Executing: /usr/lib/systemd/systemd-sysv-install enable ssh
Created symlink /etc/systemd/system/sshd.service → /usr/lib/systemd/system/ssh.s
ervice.
Created symlink /etc/systemd/system/multi-user.target.wants/ssh.service → /usr/l
ib/systemd/system/ssh.service.
root@alumne-jordi-VirtualBox:/etc/systemd/system/multi-user.target.wants#
```

```
root@alumne-jordi-VirtualBox:/home/alumne-jordi# systemctl status cron
○ cron.service - Regular background program processing daemon
     Loaded: loaded (/usr/lib/systemd/system/cron.service; disabled; preset: en>
     Active: inactive (dead)
       Docs: man:cron(8)
lines 1-4/4 (END)
^Z
◆: no se encontró la orden
root@alumne-jordi-VirtualBox:/home/alumne-jordi# systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
     Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enab>
     Active: active (running) since Wed 2025-09-17 20:08:24 CEST; 56s ago
TriggeredBy: ● ssh.socket
       Docs: man:sshd(8)
             man:sshd_config(5)
    Process: 1080 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 1095 (sshd)
      Tasks: 1 (limit: 1603)
     Memory: 2.1M (peak: 2.3M)
        CPU: 16ms
     CGroup: /system.slice/ssh.service
             └─1095 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

sep 17 20:08:24 alumne-jordi-VirtualBox systemd[1]: Starting ssh.service - Open>
sep 17 20:08:24 alumne-jordi-VirtualBox sshd[1095]: Server listening on 0.0.0.0>
```

```
root@alumne-jordi-VirtualBox:/home/alumne-jordi# ls /etc/systemd/system/*.wants/
ssh.service
/etc/systemd/system/multi-user.target.wants/ssh.service
root@alumne-jordi-VirtualBox:/home/alumne-jordi#
```

```
root@alumne-jordi-VirtualBox:/etc/rc5.d# ls -l
total 0
lrwxrwxrwx 1 root root 14 ago  5 18:48 K01cron -> ../init.d/cron
```

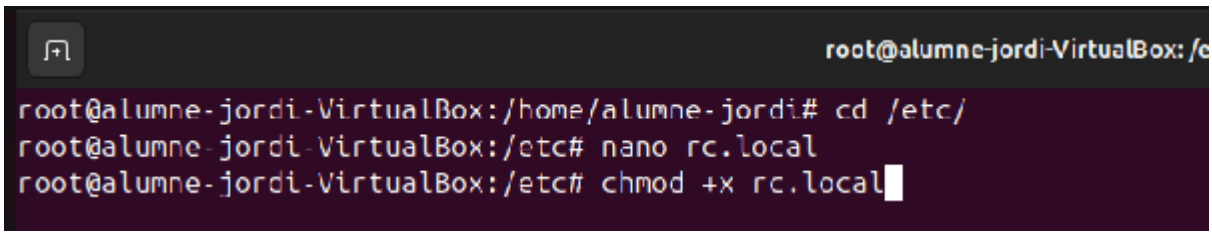
si l'habilitem vorem que a passat a S01

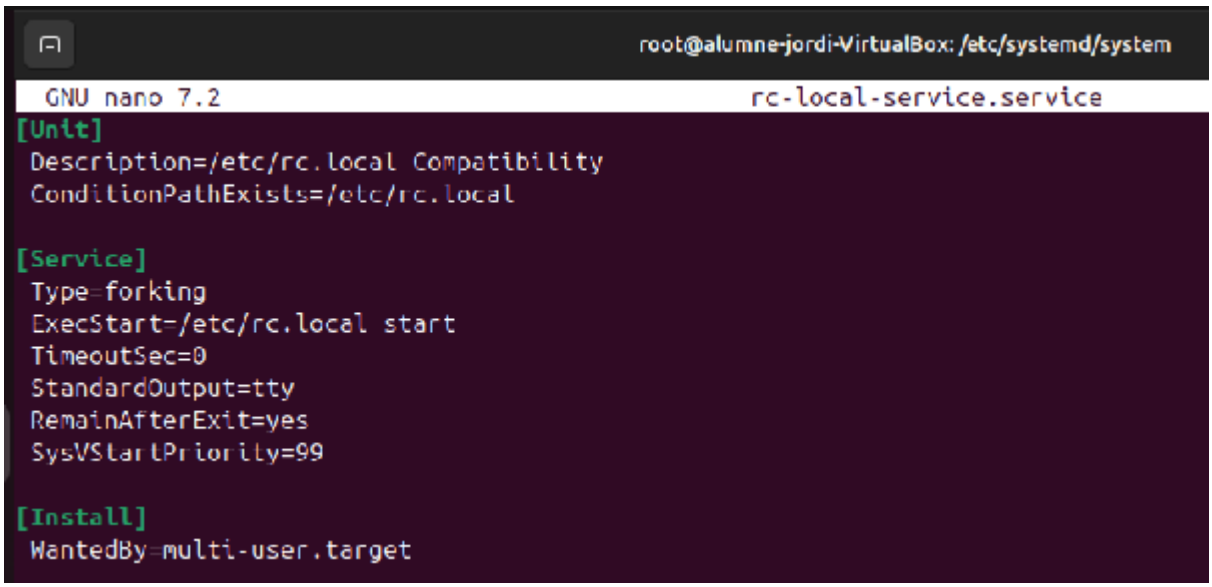
```
root@alumne-jordi-VirtualBox:/etc/rc5.d# ls -l
total 0
lrwxrwxrwx 1 root root 27 ago  5 18:51 K01speech-dispatcher -> ../
dispatcher
lrwxrwxrwx 1 root root 17 ago  5 18:51 S01anacron -> ../init.d/ana
lrwxrwxrwx 1 root root 16 ago  5 18:51 S01apport -> ../init.d/appo
lrwxrwxrwx 1 root root 19 ago  5 18:51 S01bluetooth -> ../init.d/b
lrwxrwxrwx 1 root root 26 ago  5 18:48 S01console-setup.sh -> ../i
setup.sh
lrwxrwxrwx 1 root root 14 ago  5 18:48 S01cron -> ../init.d/cron
```

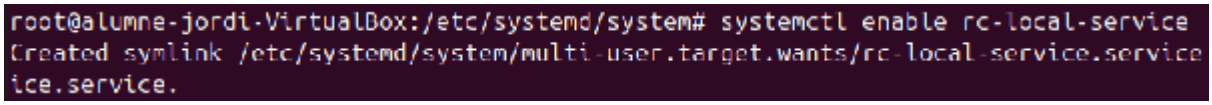
```
root@alumne-jordi-VirtualBox:/etc/rc5.d# systemd-analyze critical-chain
The time when unit became active or started is printed after the "@" character.
The time the unit took to start is printed after the "+" character.

graphical.target @5.680s
└─multi-user.target @5.680s
  └─plymouth-quit-wait.service @2.667s +3.012s
    └─systemd-user-sessions.service @2.654s +8ms
      └─network.target @2.637s
        └─NetworkManager.service @1.883s +754ms
          └─dbus.service @1.640s +235ms
            └─basic.target @1.637s
              └─sockets.target @1.637s
                └─snapd.socket @1.630s +6ms
                  └─sysinit.target @1.626s
                    └─snapd.apparmor.service @737ms +888ms
                      └─apparmor.service @483ms +249ms
                        └─local-fs.target @472ms
                          └─run-snapd-ns.mount @3.915s
                            └─local-fs-pre.target @403ms
                              └─systemd-tmpfiles-setup-dev.service @398ms +5ms
                                └─systemd-tmpfiles-setup-dev-early.service @348
                                  └─kmod-static-nodes.service @328ms +15ms
                                    └─systemd-journald.socket @320ms
                                      └─-.mount @292ms
                                        └─-.slice @292ms
```

Classe 2

```
root@alumne-jordi-VirtualBox:/
root@alumne-jordi-VirtualBox:/home/alumne-jordi# cd /etc/
root@alumne-jordi-VirtualBox:/etc# nano rc.local
```







Feina per a fer:

Creat un nou target (amb el nostre nom) →dintre del nostre target: crear un servei → crear i executar un script (llliure elecció)

Primer creem el nostre target

```
  GNU nano 7.2                  /etc/systemd/system/jordic.target
[Unit]
Description=Target Jordi
Requires=graphical.target
After=network-online.target multi-user.target
Wants=network-online.target

[Install]
WantedBy=multi-user.target
```

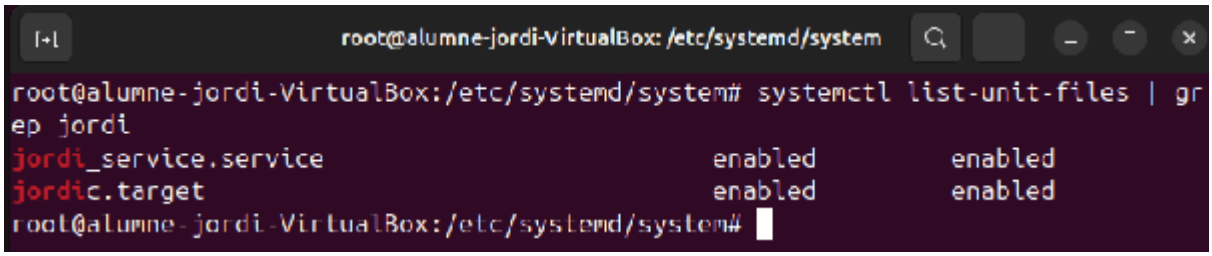
ara fem el servei

```
  GNU nano 7.2          /etc/systemd/system/jordi_service.service *
[Unit]
Description=Servidor HTTP directori
After=network.target
PartOf=jordic.target

[Service]
Type=simple
User=root
Group=root
ExecStart=/usr/local/bin/server.py
Restart=always
RestartSec=5
WorkingDirectory=/
Environment=PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin

[Install]
WantedBy=jordic.target
```

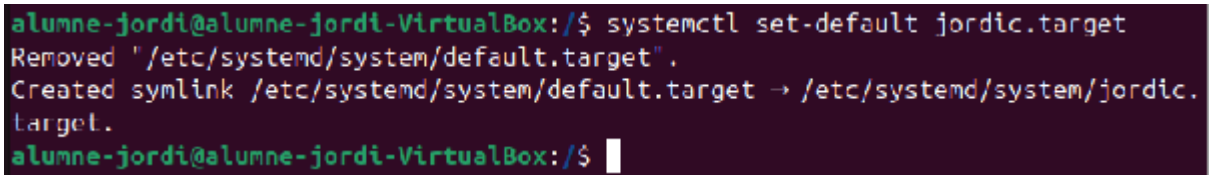
de primeres els dos apareixeran com “deshabilitats”

```
alumne-jordi@alumne-jordi-VirtualBox: ~
● jordi_service.service - Servidor HTTP per compartir el directori segur de Jordi
     Loaded: loaded (/etc/systemd/system/jordi_service.service; enabled; preset: enabled)
     Active: active (running) since Mon 2025-10-13 13:15:34 CEST; 1h 26min ago
   Main PID: 1346 (python3)
      Tasks: 1 (limit: 4603)
     Memory: 9.1M (peak: 9.3M)
        CPU: 1.152s
     CGroup: /system.slice/jordi_service.service
             └─1346 python3 /usr/local/bin/server.py

oct 13 13:15:34 alumne-jordi-VirtualBox systemd[1]: Started jordi_service.service - Servidor
-
```

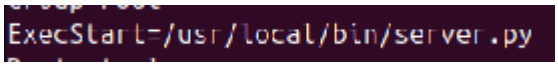
els podem iniciar amb un systemctl enable i comprobar que existeixen



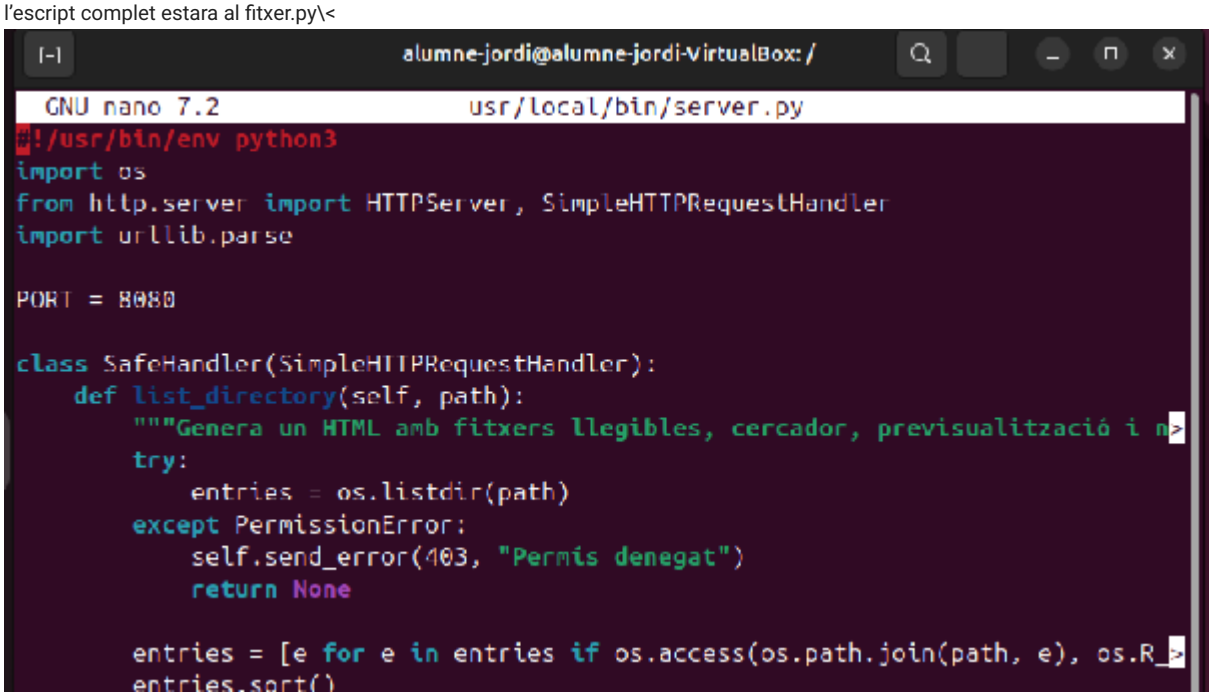
tambe hem d'afegir el target com a default amb la següent comanda

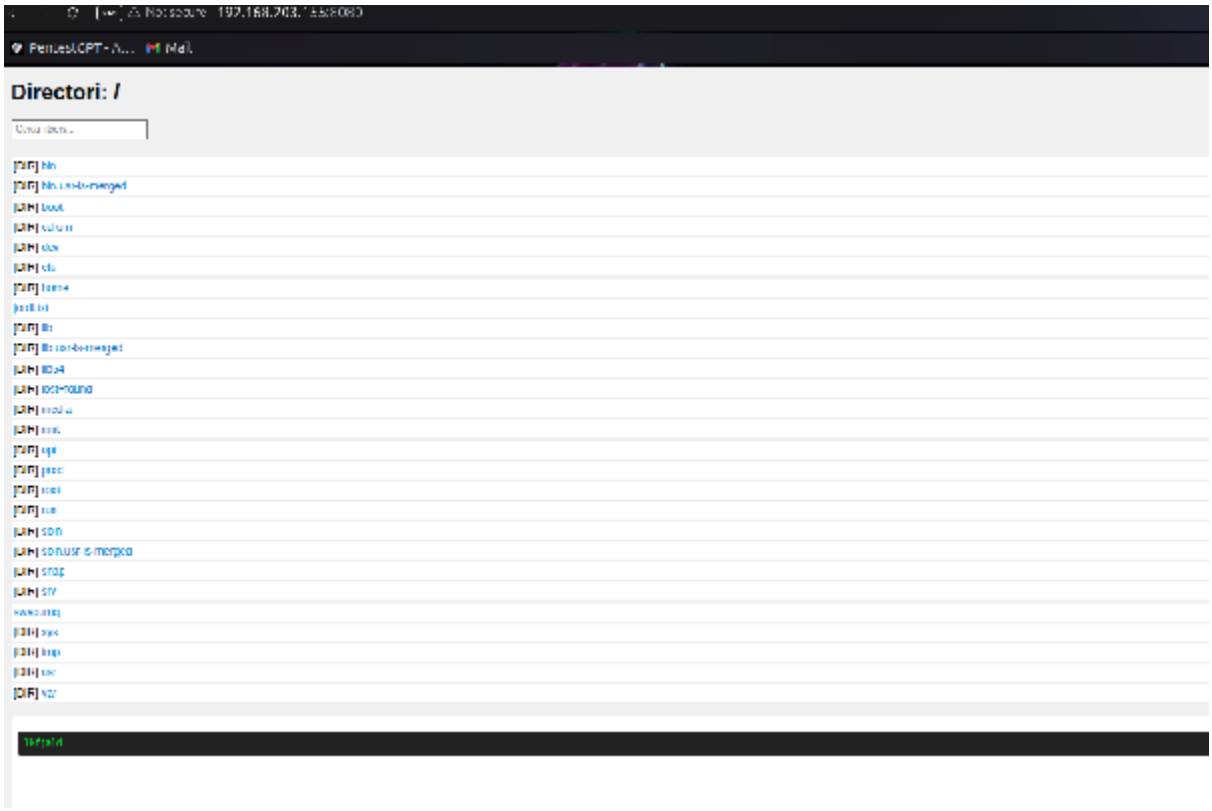


amb aquest script podrem vore el directori del systema afectat i tambe tindrem un petit quadre que mostrara el contingut dels fitxers seleccionats



l'escript complet estara al fitxer.py\<




Directori: /