Pràctica 2: Implementació d'un sistema redundant en un CPD

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INDEX

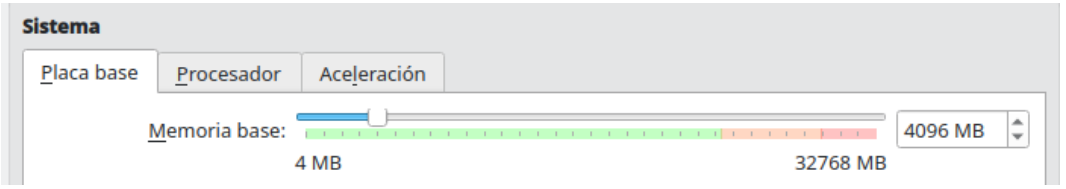
Introducció

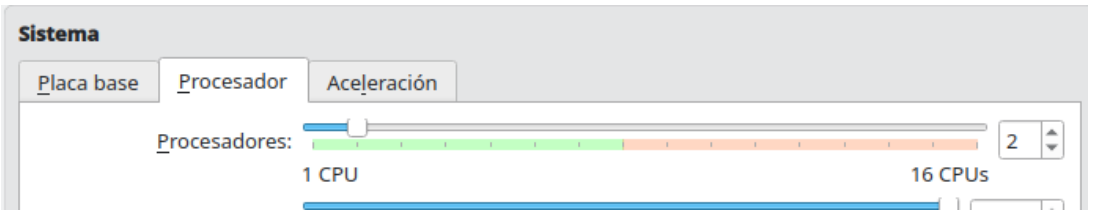
Dissenyar un sistema mínimament redundant dins d'un CPD virtualitzat, configurant servidors amb tolerància a fallades, seguretat de xarxa i mecanismes bàsics de monitorització.

1. Configuració del sistema

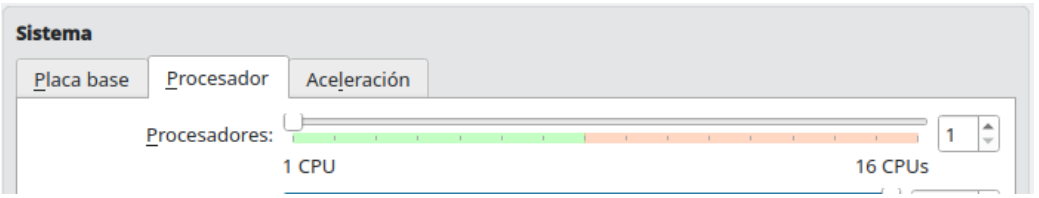
1. **Crea dues màquines virtuals:**

    - **SO**: Ubuntu Server.
    - **Servidor-Principal**: 2 CPU, 4 GB RAM, 2 discos (40 GB SO, 20 GB dades).

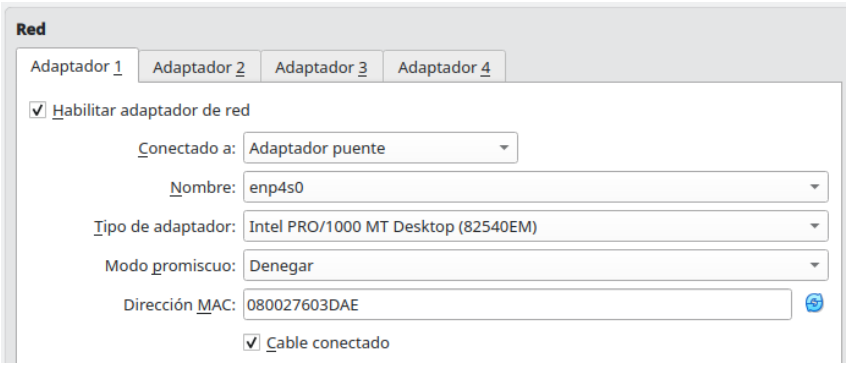




    - **Servidor-Backup**: 1 CPU, 2 GB RAM, 2 discos (40 GB SO, 20 GB dades).



2. **Configurar RAID 1 al Servidor-Principal**:
    - Xarxa en **mode "Bridged"**.
    - **Si tens problemes amb mode Bridge**: [Nat and host only connection]



3. **Configurar RAID 1 al Servidor-Principal**:

- Usa `mdadm` per unir els dos discos de dades.

PASOS: en el server principal

primer actualitza , per que no et doni errors amb incompatibilitats

```
rosi@ser-principal:~$ sudo apt-get upgrade
```

ubica el disc

```
rosi@ser-principal:~$ lsblk
NAME                      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda                         8:0    0   25G  0 disk
├─sda1                      8:1    0    1M  0 part
├─sda2                      8:2    0    2G  0 part /boot
└─sda3                      8:3    0   23G  0 part
  └─ubuntu--vg-ubuntu--lv 252:0    0 11,5G  0 lvm  /
sdb                         8:16   0   40G  0 disk
sr0                        11:0    1 1024M  0 rom
rosi@ser-principal:~$
```

primer has de crear amb mdadm el raid amb el disc del server-principal

missing indica que falta el 2 disc

```
rosi@ser-principal:~$ sudo mdadm --create --verbose /dev/md0 --level=1 --raid-devices=2 /dev/sdb missing
[sudo] password for rosi:
mdadm: Note: this array has metadata at the start and
    may not be suitable as a boot device.  If you plan to
    store '/boot' on this device please ensure that
    your boot-loader understands md/v1.x metadata, or use
    --metadata=0.90
mdadm: size set to 41909248K
Continue creating array? yes
mdadm: Defaulting to version 1.2 metadata
mdadm: array /dev/md0 started.
```

```
rosi@ser-principal:~$ lsblk
NAME                      MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINTS
sda                         8:0    0   25G  0 disk
├─sda1                      8:1    0    1M  0 part
├─sda2                      8:2    0    2G  0 part  /boot
└─sda3                      8:3    0   23G  0 part
  └─ubuntu--vg-ubuntu--lv 252:0    0 11,5G  0 lvm   /
sdb                         8:16   0   40G  0 disk
└─md0                       9:0    0   40G  0 raid1
sr0                        11:0    1 1024M  0 rom
```

Raid correcta

```
rosi@ser-principal:~$ cat /proc/mdstat
Personalities : [raid0] [raid1] [raid6] [raid5] [raid4] [raid10]
md0 : active raid1 sdb[0]
      41909248 blocks super 1.2 [2/1] [U_]

unused devices: <none>
rosi@ser-principal:~$
```

- Munta el RAID a `/mnt/dades/`.

primer formatea el RAID a ext4

```
rosi@ser-principal:~$ sudo mkfs.ext4 /dev/md0
mke2fs 1.47.0 (5-Feb-2023)
Creating filesystem with 10477312 4k blocks and 2621440 inodes
Filesystem UUID: 5ff078c8-886e-48f6-9b91-3e7e0aafe085
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
        4096000, 7962624

Allocating group tables: done
Writing inode tables: done
Creating journal (65536 blocks): done
Writing superblocks and filesystem accounting information: done
```

crea la carpeta pero muntar el raid

```
rosi@ser-principal:~$ sudo mkdir -p /mnt/dades
```

amb mount muntar el raid

```
rosi@ser-principal:~$ sudo mount /dev/md0 /mnt/dades/
rosi@ser-principal:~$
```

df -h per veure els dispositius muntats

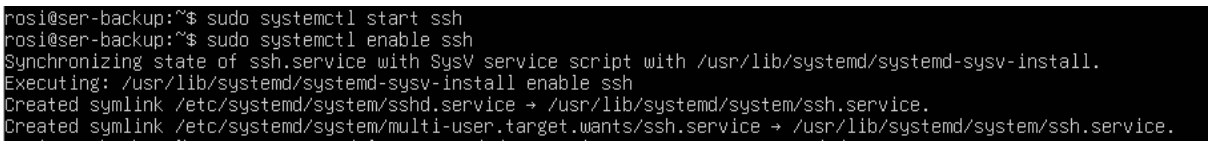
```
rosi@ser-principal:~$ df -h
Filesystem                         Size  Used Avail Use% Mounted on
tmpfs                              392M  1,1M  391M   1% /run
/dev/mapper/ubuntu--vg-ubuntu--lv   12G  5,2G  5,5G  49% /
tmpfs                              2,0G     0  2,0G   0% /dev/shm
tmpfs                              5,0M     0  5,0M   0% /run/lock
/dev/sda2                          2,0G   96M  1,7G   6% /boot
tmpfs                              392M   12K  392M   1% /run/user/1000
/dev/md0                            40G   24K   38G   1% /mnt/dades
```

4. **Configura sincronització automàtica** amb `rsync`:

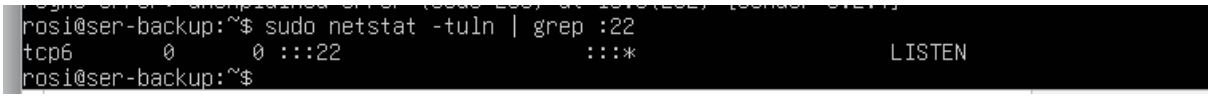
    - Copia `/mnt/dades/` del `Servidor-Principal` al `Servidor-Backup` cada 6 hores.

per que funcioni rsync verifica que les màquines esten bé actualitzades i és necessari tenir ssh instal·lat i configurat en les dues màquines

inicia el servidor



verifica que el port este escoltant



ssh funcionant

```
rosi@ser-principal:~$ ssh rosi@192.168.56.113
The authenticity of host '192.168.56.113 (192.168.56.113)' can't be established.
ED25519 key fingerprint is SHA256:/Vag0JNFsXb68pPj/EEeoD4RJfLni3sG/3Q2V6rvl6k.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.56.113' (ED25519) to the list of known hosts.
rosi@192.168.56.113's password:
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-52-generic x86_64)

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

 System information as of mar 11 mar 2025 11:45:51 UTC

  System load:             0.03
  Usage of /:              54.9% of 11.21GB
  Memory usage:            11%
  Swap usage:              0%
  Processes:               104
  Users logged in:         1
  IPv4 address for enp0s3: 10.0.2.15
  IPv6 address for enp0s3: fd00::a00:27ff:fe8a:ffb9

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

El mantenimiento de seguridad expandido para Applications está desactivado

Se pueden aplicar 0 actualizaciones de forma inmediata.

Active ESM Apps para recibir futuras actualizaciones de seguridad adicionales.
Vea https://ubuntu.com/esm o ejecute «sudo pro status»


*** Es necesario reiniciar el sistema ***
rosi@ser-backup:~$ exit
logout
Connection to 192.168.56.113 closed.
rosi@ser-principal:~$ _
```

en les dues màquines donali password a root perquè dóna errors de permís denegat quan executes rsync

```
rosi@ser-principal:~$ sudo passwd root
New password:
Retype new password:
passwd: password updated successfully
rosi@ser-principal:~$
```

Per que ssh accepti connexions amb root activa aquest paràmetre, ho has de fer perquè les carpetes tenen com propietari el root, doncs si fas el rsync amb altre usuari et sortirà error de permisos

carpeta server principal

```
rosi@ser-principal:~$ ls -ld /mnt/dades/
drwxr-xr-x 3 root root 4096 mar 11 10:55 /mnt/dades/
rosi@ser-principal:~$
```

carpeta server backup

```
rosi@ser-backup:~$ ls -ld /mnt/backup-dades/
drwxr-xr-x 3 root root 4096 mar 11 10:55 /mnt/backup-dades/
rosi@ser-backup:~$
```

edita el fitxer /etc/ssh/sshd_config

```
# This is the sshd server system-wide configuration file.  See
# sshd_config(5) for more information.

# This sshd was compiled with PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/

# The strategy used for options in the default sshd_config shipped with
# OpenSSH is to specify options with their default value where
# possible, but leave them commented.  Uncommented options override the
# default value.

Include /etc/ssh/sshd_config.d/*.conf

#Port 22
#AddressFamily any
#ListenAddress 0.0.0.0
#ListenAddress ::

#HostKey /etc/ssh/ssh_host_rsa_key
#HostKey /etc/ssh/ssh_host_ecdsa_key
#HostKey /etc/ssh/ssh_host_ed25519_key

# Ciphers and keying
#RekeyLimit default none

# Logging
#SyslogFacility AUTH
#LogLevel INFO

# Authentication:

#LoginGraceTime 2m
PermitRootLogin yes
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10

#PubkeyAuthentication yes

# Expect .ssh/authorized_keys2 to be disregarded by default in future.
#AuthorizedKeysFile     .ssh/authorized_keys .ssh/authorized_keys2

#AuthorizedPrincipalsFile none

#AuthorizedKeysCommand none
#AuthorizedKeysCommandUser nobody
```

primer crea la carpeta de desti en el server backup

```
rosi@ser-backup:~$ sudo mkdir /mnt/backup-dades
```

en el server principal executa

`sudo rsync -avz /mnt/dades/ usuari_root@ip_backup:/ruta/destinació_backup`

```
rosi@ser-principal:~$ sudo rsync -avz --delete /mnt/dades/ root@192.168.56.113:/mnt/backup-dades
root@192.168.56.113's password:
sending incremental file list
./
lost+found/

sent 93 bytes  received 23 bytes  33,14 bytes/sec
total size is 0  speedup is 0,00
rosi@ser-principal:~$
```

copiat en el backup

```
rosi@ser-backup:~$ ls -l /mnt/backup-dades/
total 4
drwx------ 2 root root 4096 mar 11 10:55 lost+found
```

edita el crontab -e perque sigui cada 6 hores

```
rosi@ser-principal:~$ crontab -e
```

```
no crontab for rosi - using an empty one

Select an editor.  To change later, run 'select-editor'.
  1. /bin/nano        <---- easiest
  2. /usr/bin/vim.basic
  3. /usr/bin/vim.tiny
  4. /bin/ed

Choose 1-4 [1]: 1
```

afegeix aquesta linia, min 0 hora 6 qualsevol dia mes i any

```
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h  dom mon dow   command

0 6 * * * rsync -avz /mnt/dades/ root@192.168.56.113:/mnt/backup-dades
```

2. Seguretat i protecció de xarxa

1. **Firewall (`iptables` o `ufw`)**:

    - Permet només trànsit intern entre servidors.

    en els dos servers has d'afegir una rule per la xarxa

    activa el ufw

```
rosi@ser-backup:~$ sudo ufw enable
```

```
rosi@ser-backup:~$ sudo ufw allow from 192.168.56.112
```

```
rosi@ser-principal:~$ sudo ufw allow from 192.168.56.113
Rule added
```

    i reload

```
rosi@ser-backup:~$ sudo ufw reload
Firewall reloaded
rosi@ser-backup:~$
```

    - Bloqueja tot excepte SSH des d'una IP autoritzada.

```
rosi@ser-principal:~$ sudo ufw allow from 192.168.56.113 to any port ssh
```

```
rosi@ser-backup:~$ sudo ufw allow from 192.168.56.112 to any port ssh
Rule added
rosi@ser-backup:~$
```

estat final

```
rosi@ser-backup:~$ sudo ufw status
Status: active

To                         Action      From
--                         ------      ----
22/tcp                     ALLOW       192.168.56.112
Anywhere                   ALLOW       192.168.56.112

rosi@ser-backup:~$
```

```
rosi@ser-principal:~$ sudo ufw status
Status: active

To                         Action      From
--                         ------      ----
22/tcp                     ALLOW       192.168.56.113
Anywhere                   ALLOW       192.168.56.113

rosi@ser-principal:~$ _
```

2. **Protecció contra atacs**:

    - Instal·la `fail2ban` per bloquejar intents de força bruta a SSH.

en els dues servers

```
No VM guests are running outdated hypervisor (qemu) bin
rosi@ser-backup:~$ sudo apt install fail2ban _
```

copia el fitxer de config per que no perdis els canvis en un futur

```
rosi@ser-backup:~$ sudo cp /etc/fail2ban/jail.conf /etc/fail2ban/jail.backup
rosi@ser-backup:~$ _
```

edita el fitxer .backup

maxretry = intents que el el client pot intentar conectar-se

bandtime = Temps de bloqueig en segons (10 minuts)

findtime=Temps en què es comptabilitzen els intents fallits

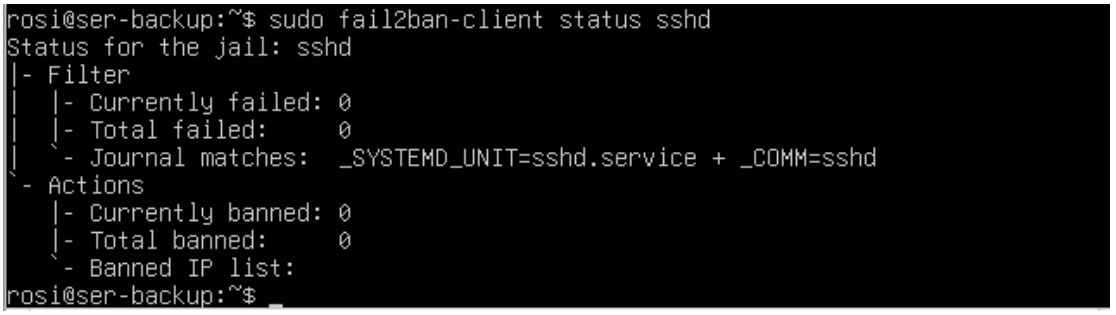
```
[sshd]

# To use more aggressive sshd modes set filter parameter "mode" in jail.local:
# normal (default), ddos, extra or aggressive (combines all).
# See "tests/files/logs/sshd" or "filter.d/sshd.conf" for usage example and details.
#mode   = normal
enabled = true
port    = ssh
logpath = %(sshd_log)s
backend = %(sshd_backend)s
maxretry = 3
bantime = 600
findtime = 600
```

activa

```
rosi@ser-backup:~$ sudo systemctl start fail2ban
rosi@ser-backup:~$ sudo systemctl enable fail2ban
```

veure l'estat del jail sshd

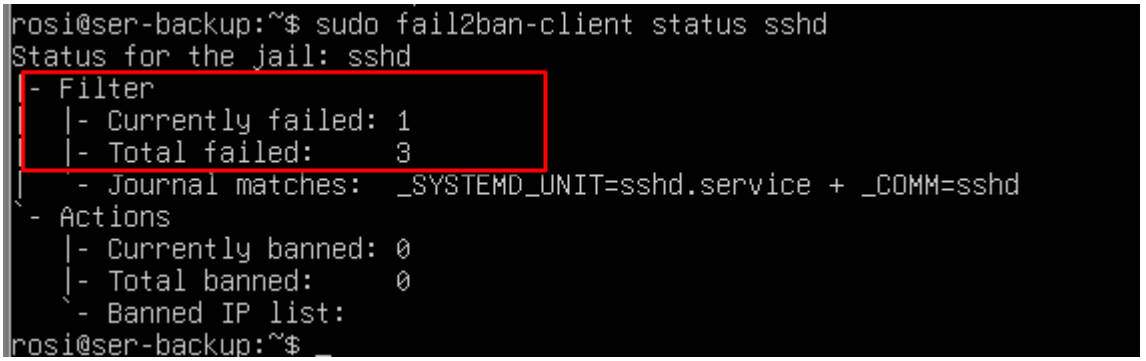
```
sudo fail2ban-client status sshd
```



- Simula un atac (intents fallits d'accés) i comprova el bloqueig.

connectat des de l'altre server fes un ssh i posa claus erroneas, fins que surti el missatge de permis denegat

si tornas a fer un status sshd del jail en el server veures que ha sumat un failed i els intents



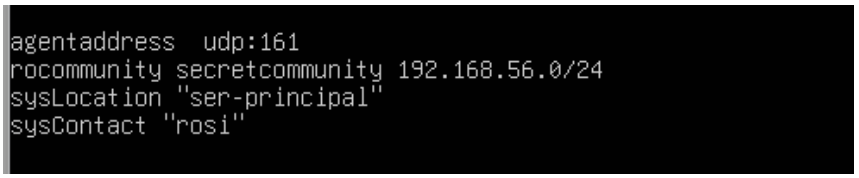
3. Monitorització bàsica i consulta SNMP

Per garantir el monitoratge dels servidors dins del CPD, s'ha d'implementar un sistema bàsic de supervisió mitjançant el protocol **SNMP (Simple Network Management Protocol)**. Aquest sistema permet obtenir informació en temps real sobre l'estat del **Servidor-Principal**.

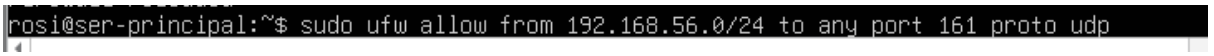
3.1 Instal·lació i configuració de SNMP

1. Instal·la i configura el servei **SNMP** (`snmpd`) al `Servidor-Principal`.

2. Configura una comunitat SNMP segura que permeti només consultes des de la xarxa interna.



firewall



3. Comprova que el servei està funcionant correctament.

amb sudo systemctl status snmpd en el principal

```
rosi@ser-principal:~$ sudo systemctl status snmpd
[sudo] password for rosi:
● snmpd.service - Simple Network Management Protocol (SNMP) Daemon.
     Loaded: loaded (/usr/lib/systemd/system/snmpd.service; enabled; preset: enabled)
     Active: active (running) since Wed 2025-03-12 18:51:29 UTC; 24min ago
   Main PID: 1657 (snmpd)
      Tasks: 1 (limit: 4612)
     Memory: 4.0M (peak: 7.9M)
        CPU: 3.529s
     CGroup: /system.slice/snmpd.service
             └─1657 /usr/sbin/snmpd -LOw -u Debian-snmp -g Debian-snmp -I -smux mteTrigger mteTriggerConf -f

mar 12 19:06:29 ser-principal snmpd[1657]: systemstats_linux: unexpected header length in /proc/net/snmp. 237 != 224
mar 12 19:07:29 ser-principal snmpd[1657]: systemstats_linux: unexpected header length in /proc/net/snmp. 237 != 224
mar 12 19:08:29 ser-principal snmpd[1657]: systemstats_linux: unexpected header length in /proc/net/snmp. 237 != 224
mar 12 19:09:29 ser-principal snmpd[1657]: systemstats_linux: unexpected header length in /proc/net/snmp. 237 != 224
mar 12 19:10:29 ser-principal snmpd[1657]: systemstats_linux: unexpected header length in /proc/net/snmp. 237 != 224
mar 12 19:11:29 ser-principal snmpd[1657]: systemstats_linux: unexpected header length in /proc/net/snmp. 237 != 224
mar 12 19:12:29 ser-principal snmpd[1657]: systemstats_linux: unexpected header length in /proc/net/snmp. 237 != 224
mar 12 19:13:29 ser-principal snmpd[1657]: systemstats_linux: unexpected header length in /proc/net/snmp. 237 != 224
mar 12 19:14:29 ser-principal snmpd[1657]: systemstats_linux: unexpected header length in /proc/net/snmp. 237 != 224
mar 12 19:15:29 ser-principal snmpd[1657]: systemstats_linux: unexpected header length in /proc/net/snmp. 237 != 224
rosi@ser-principal:~$ _
```

en el backup

```
rosi@ser-backup:~$ sudo apt install snmp
```

activa el firewall

```
rosi@ser-backup:~$ sudo ufw allow from 192.168.56.0/24 to any port 161 proto udp
```

al hora de comprovar dona errors per falta de mibs

descarregals

```
rosi@ser-backup:~$ sudo apt install snmp-mibs-downloader -y
```

```
rosi@ser-backup:~$ sudo download-mibs _
```

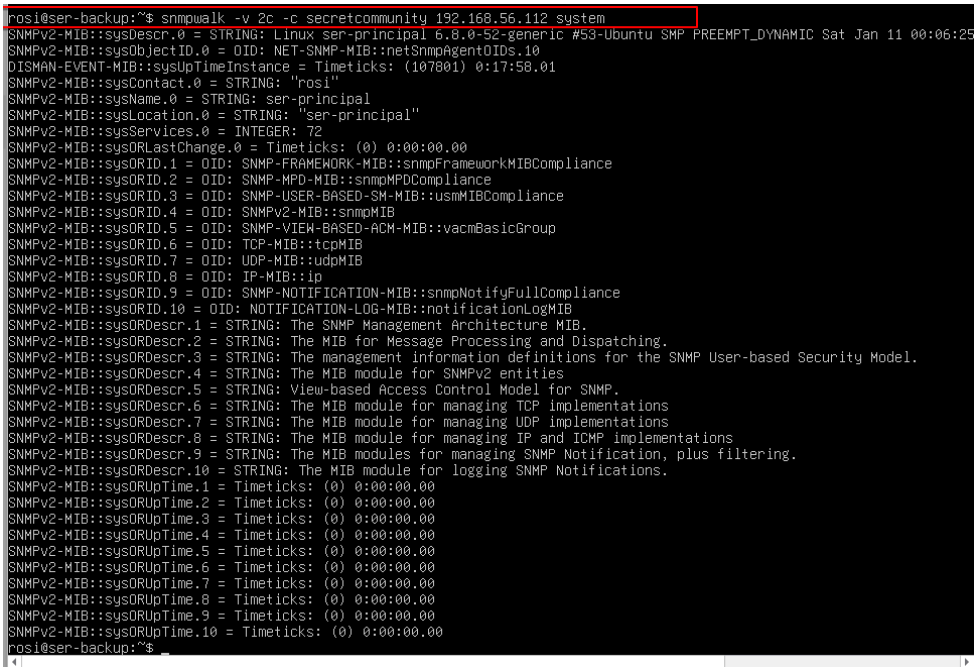
edita el fitxer

```
rosi@ser-backup:~$ sudo nano /etc/snmp/snmp.conf
```

comenta el mibs per que accepti tots

```
# As the snmp packages come without MIB files due to license reasons, loading
# of MIBs is disabled by default. If you added the MIBs you can reenable
# loading them by commenting out the following line.
#mibs :

# If you want to globally change where snmp libraries, commands and daemons
# look for MIBS, change the line below. Note you can set this for individual
# tools with the -M option or MIBDIRS environment variable.
#
# mibdirs /usr/share/snmp/mibs:/usr/share/snmp/mibs/iana:/usr/share/snmp/mibs/ietf
```

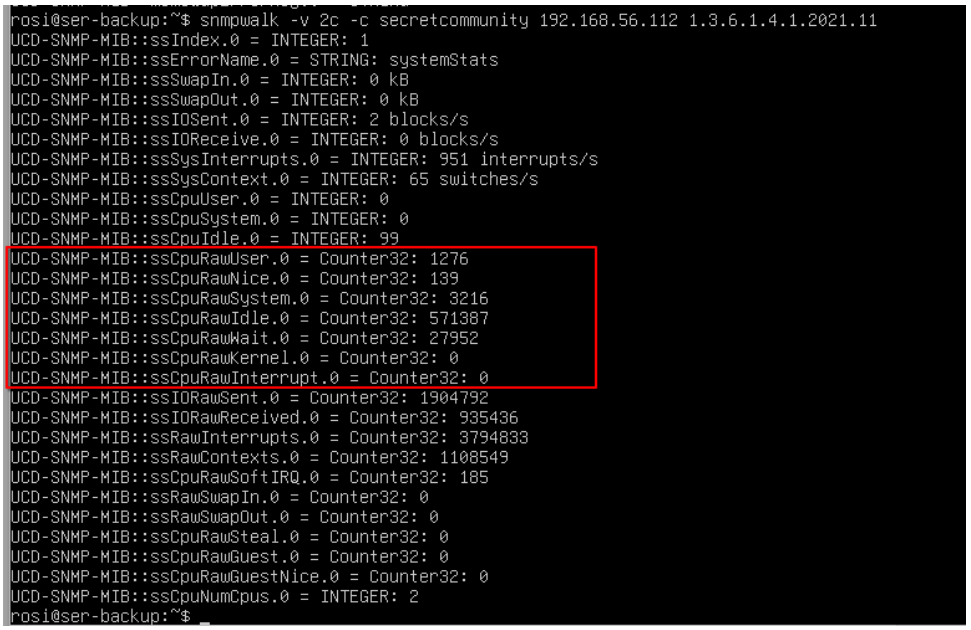
per comprovar snmpwalk -v 2c -c secretcommunity 192.168.56.112 system



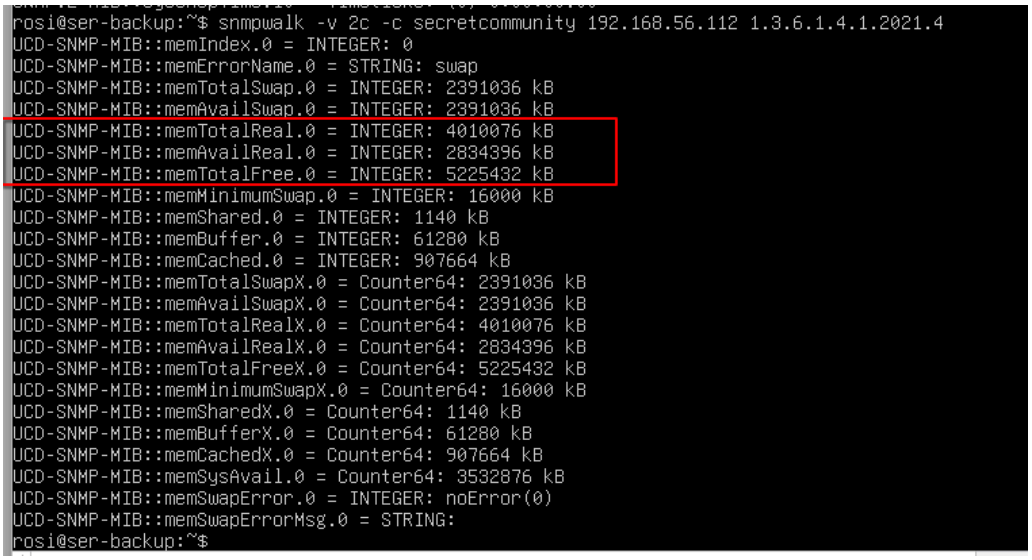
3.2 Consulta d'informació del sistema

Des del **Servidor-Backup**, fes una consulta SNMP per obtenir informació del `Servidor-Principal`. La consulta ha de recuperar almenys:

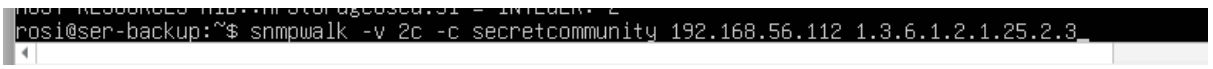
- L'ús actual de CPU.

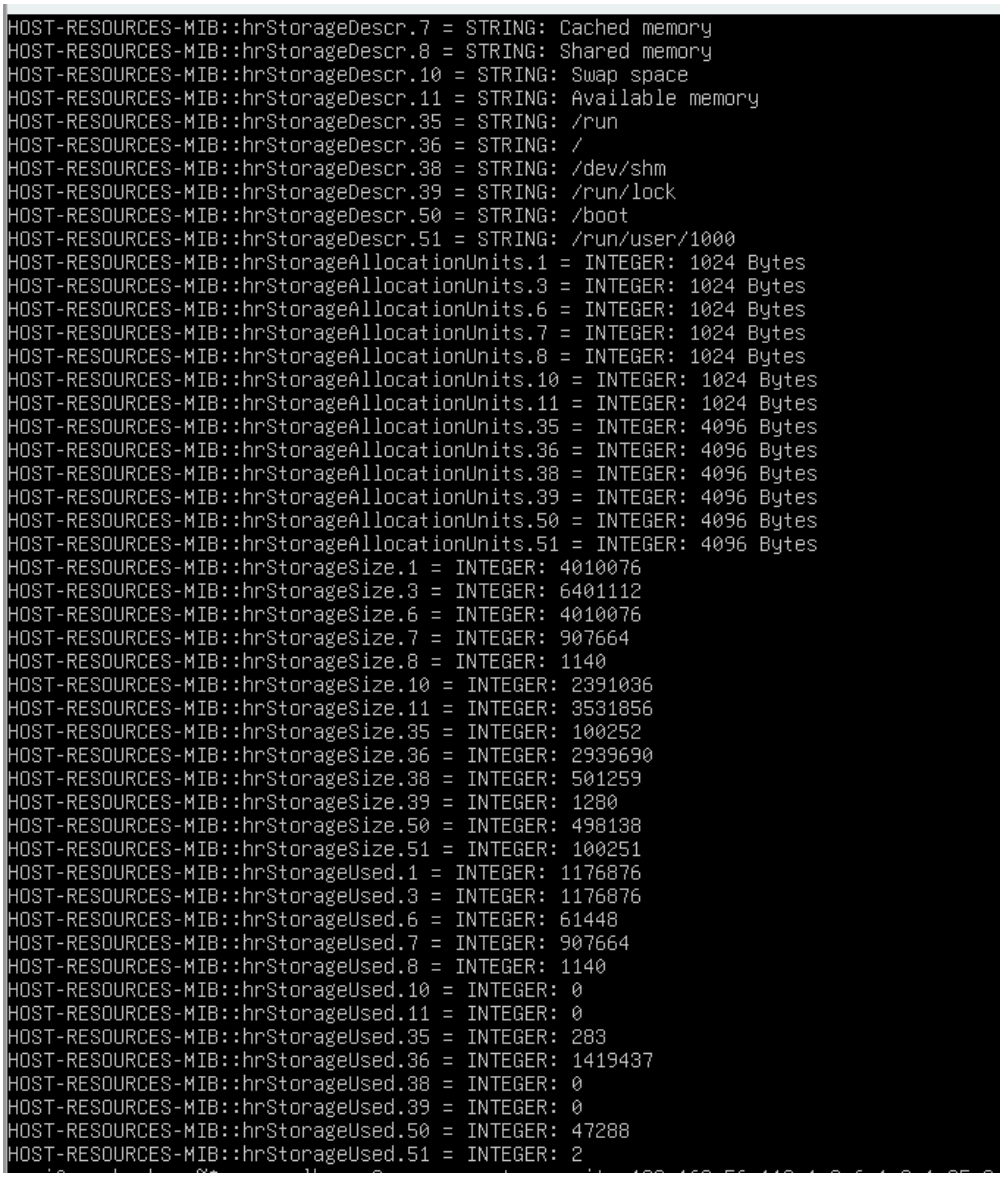


- La memòria RAM disponible.



- L'espai lliure al sistema de fitxers.




HOST-RESOURCES-MIB::hrStorageDescr.7 = STRING: Cached memory
HOST-RESOURCES-MIB::hrStorageDescr.8 = STRING: Shared memory
HOST-RESOURCES-MIB::hrStorageDescr.10 = STRING: Swap space
HOST-RESOURCES-MIB::hrStorageDescr.11 = STRING: Available memory
HOST-RESOURCES-MIB::hrStorageDescr.35 = STRING: /run
HOST-RESOURCES-MIB::hrStorageDescr.36 = STRING: /
HOST-RESOURCES-MIB::hrStorageDescr.38 = STRING: /dev/shm
HOST-RESOURCES-MIB::hrStorageDescr.39 = STRING: /run/lock
HOST-RESOURCES-MIB::hrStorageDescr.50 = STRING: /boot
HOST-RESOURCES-MIB::hrStorageDescr.51 = STRING: /run/user/1000
HOST-RESOURCES-MIB::hrStorageAllocationUnits.1 = INTEGER: 1024 Bytes
HOST-RESOURCES-MIB::hrStorageAllocationUnits.3 = INTEGER: 1024 Bytes
HOST-RESOURCES-MIB::hrStorageAllocationUnits.6 = INTEGER: 1024 Bytes
HOST-RESOURCES-MIB::hrStorageAllocationUnits.7 = INTEGER: 1024 Bytes
HOST-RESOURCES-MIB::hrStorageAllocationUnits.8 = INTEGER: 1024 Bytes
HOST-RESOURCES-MIB::hrStorageAllocationUnits.10 = INTEGER: 1024 Bytes
HOST-RESOURCES-MIB::hrStorageAllocationUnits.11 = INTEGER: 1024 Bytes
HOST-RESOURCES-MIB::hrStorageAllocationUnits.35 = INTEGER: 4096 Bytes
HOST-RESOURCES-MIB::hrStorageAllocationUnits.36 = INTEGER: 4096 Bytes
HOST-RESOURCES-MIB::hrStorageAllocationUnits.38 = INTEGER: 4096 Bytes
HOST-RESOURCES-MIB::hrStorageAllocationUnits.39 = INTEGER: 4096 Bytes
HOST-RESOURCES-MIB::hrStorageAllocationUnits.50 = INTEGER: 4096 Bytes
HOST-RESOURCES-MIB::hrStorageAllocationUnits.51 = INTEGER: 4096 Bytes
HOST-RESOURCES-MIB::hrStorageSize.1 = INTEGER: 4010076
HOST-RESOURCES-MIB::hrStorageSize.3 = INTEGER: 6401112
HOST-RESOURCES-MIB::hrStorageSize.6 = INTEGER: 4010076
HOST-RESOURCES-MIB::hrStorageSize.7 = INTEGER: 907664
HOST-RESOURCES-MIB::hrStorageSize.8 = INTEGER: 1140
HOST-RESOURCES-MIB::hrStorageSize.10 = INTEGER: 2391036
HOST-RESOURCES-MIB::hrStorageSize.11 = INTEGER: 3531856
HOST-RESOURCES-MIB::hrStorageSize.35 = INTEGER: 100252
HOST-RESOURCES-MIB::hrStorageSize.36 = INTEGER: 2939690
HOST-RESOURCES-MIB::hrStorageSize.38 = INTEGER: 501259
HOST-RESOURCES-MIB::hrStorageSize.39 = INTEGER: 1280
HOST-RESOURCES-MIB::hrStorageSize.50 = INTEGER: 498138
HOST-RESOURCES-MIB::hrStorageSize.51 = INTEGER: 100251
HOST-RESOURCES-MIB::hrStorageUsed.1 = INTEGER: 1176876
HOST-RESOURCES-MIB::hrStorageUsed.3 = INTEGER: 1176876
HOST-RESOURCES-MIB::hrStorageUsed.6 = INTEGER: 61448
HOST-RESOURCES-MIB::hrStorageUsed.7 = INTEGER: 907664
HOST-RESOURCES-MIB::hrStorageUsed.8 = INTEGER: 1140
HOST-RESOURCES-MIB::hrStorageUsed.10 = INTEGER: 0
HOST-RESOURCES-MIB::hrStorageUsed.11 = INTEGER: 0
HOST-RESOURCES-MIB::hrStorageUsed.35 = INTEGER: 283
HOST-RESOURCES-MIB::hrStorageUsed.36 = INTEGER: 1419437
HOST-RESOURCES-MIB::hrStorageUsed.38 = INTEGER: 0
HOST-RESOURCES-MIB::hrStorageUsed.39 = INTEGER: 0
HOST-RESOURCES-MIB::hrStorageUsed.50 = INTEGER: 47288
HOST-RESOURCES-MIB::hrStorageUsed.51 = INTEGER: 2

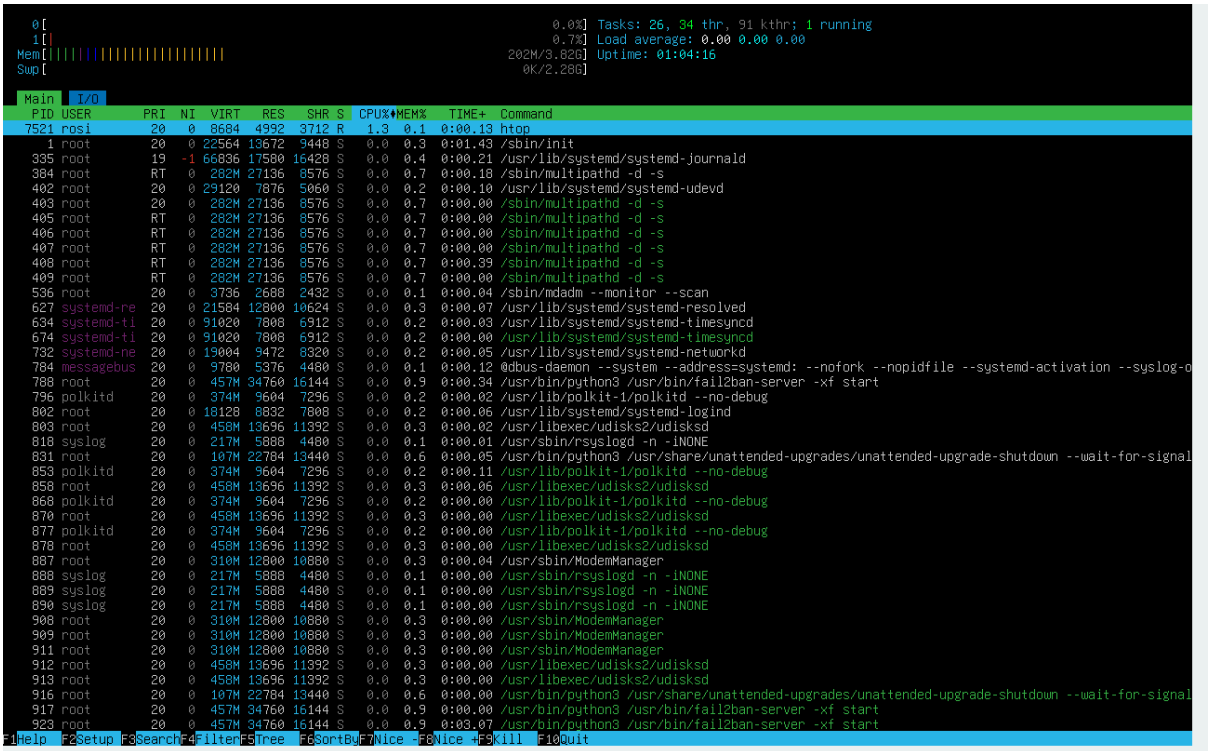
3.3 Validació de la monitorització

1. Compara la informació obtinguda via SNMP amb els valors que es poden veure localment al `Servidor-Principal` amb comandes com `htop` o `df -h`.

df -h veure l'espai dels dispositius

```
rosi@ser-principal:~$ df -h
Filesystem                         Size  Used Avail Use% Mounted on
tmpfs                              392M  1,2M  391M   1% /run
/dev/mapper/ubuntu--vg-ubuntu--lv   12G  5,5G  5,3G  51% /
tmpfs                              2,0G     0  2,0G   0% /dev/shm
tmpfs                              5,0M     0  5,0M   0% /run/lock
/dev/sda2                          2,0G  185M  1,7G  11% /boot
tmpfs                              392M  8,0K  392M   1% /run/user/1000
rosi@ser-principal:~$
```

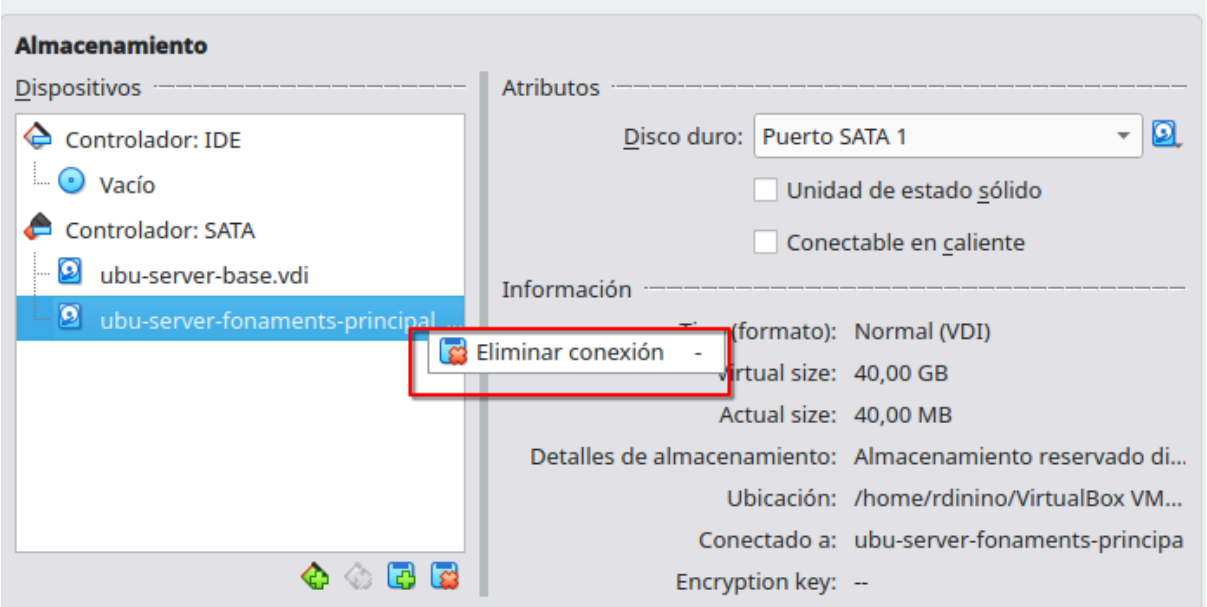
htop per el cpu



4. Simulació de fallades i recuperació

- Reemplaça el disc i reconstrueix el RAID.

elimina el disc i fica un nou



2. **Apaga el `Servidor-Principal` i verifica l'accés a les dades des del `Servidor-Backup`.**

entra al backup i fes ls de la carpeta

```
rosi@ser-backup:~$ ls -l /mnt/backup-dades/
total 4
drwx------ 2 root root 4096 mar 11 10:55 lost+found
rosi@ser-backup:~$
```

Comprova la degradació amb:
cat /proc/mdstat
no existeix

```
rosi@ser-principal:~$ cat /proc/mdstat
Personalities : [raid0] [raid1] [raid6] [raid5] [raid4] [raid10]
unused devices: <none>
rosi@ser-principal:~$
```