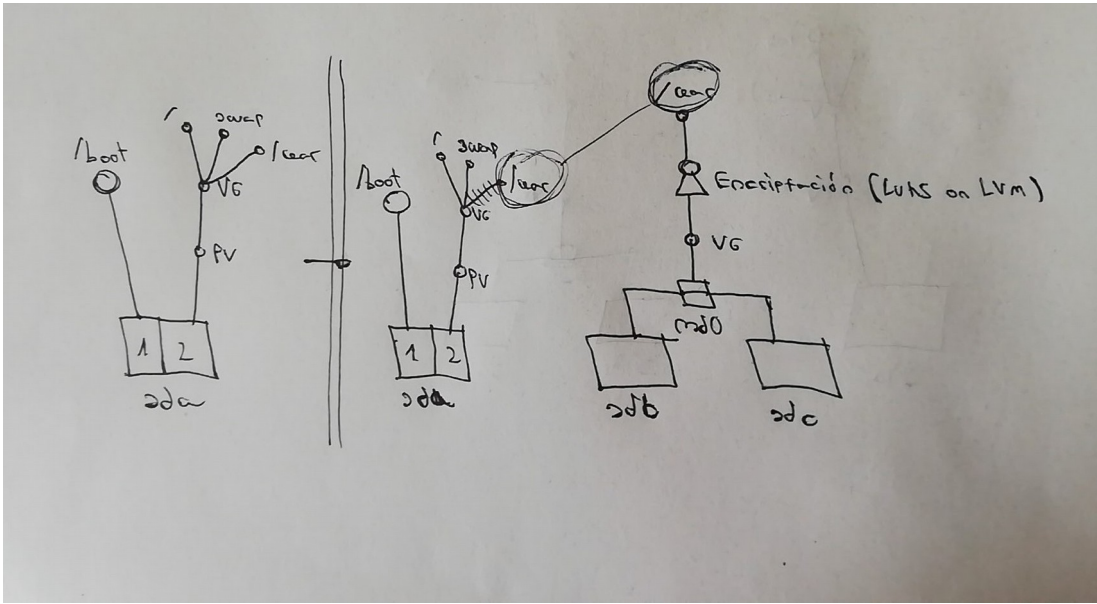


Raid y VL cifrado (CentOs)



Paso I – Preparar máquina

Añadimos los discos duros necesarios en VM y eliminamos unidad óptica.

Almacenamiento

Controlador: IDE
IDE secundario maestro: [Unidad óptica] Vacío
Controlador: SATA
Puerto SATA 0: CentOSISEL3.vdi (Normal, 8,00 GB)
Puerto SATA 1: CentOSISEL3_1.vdi (Normal, 8,00 GB)
Puerto SATA 2: CentOSISEL3_2.vdi (Normal, 8,00 GB)

Paso II – Crear raid 1

Montamos el raid 1 de la siguiente forma:

- **lsblk** → Comprobamos que ha captado los discos.
- **Sudo su** → Trabajamos en root.
- **fdisk /dev/sdb** → n, p, 1, enter, enter, w.
- **fdisk /dev/sdc** → n, p, 1, enter, enter, w.
- Comprobamos mediante **cat /proc/mdstat** si aparece 2/2 y [UU].
- **mdadm --create /dev/md0 --level=1 --raid-devices=2 /dev/sdb1 /dev/sdc1**

```
[root@localhost alcaa]# lsblk
NAME                MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINT
sda                  8:0    0   8G  0 disk
├─sda1               8:1    0    1G  0 part  /boot
├─sda2               8:2    0    7G  0 part
│   ├─cl-root        253:0    0   6,2G  0 lvm    /
│   └─cl-swap        253:1    0   820M  0 lvm    [SWAP]
sdb                  8:16    0   8G  0 disk
├─sdb1               8:17    0    8G  0 part
│   └─md0            9:0    0    8G  0 raid1
sdc                  8:32    0   8G  0 disk
├─sdc1               8:33    0    8G  0 part
│   └─md0            9:0    0    8G  0 raid1
sr0                 11:0    1 1024M  0 rom
```

resultado raid 1

Paso III – Crear PV

Creamos el volumen físico (PV), el grupo de volúmenes (VG) y el volumen lógico (LV):

- **pvcreate /dev/md0**
- **pvs** para comprobar.
- **vgcreate raidvg /dev/md0**
- **vgs** para comprobar.
- **lvcreate -L 1G -n newwar raidvg**
- **lvs** para comprobar.

```
[root@localhost alcaal# pvcreate /dev/md0
Physical volume "/dev/md0" successfully created.
[root@localhost alcaal# pvs
PV          VG Fmt Attr PSize PFree
/dev/md0    lvm2 ---  7,99g 7,99g
/dev/sda2   cl  lvm2 a--  <7,00g  0
[root@localhost alcaal# vgcreate raidvg /dev/md0
Volume group "raidvg" successfully created
[root@localhost alcaal# vgs
VG      #PV #LV #SN Attr   USize  UFree
cl       1  2  0 wz--n- <7,00g  0
raidvg   1  0  0 wz--n-  7,99g 7,99g
[root@localhost alcaal# lvcreate -L 1G -n newwar raidvg
Logical volume "newwar" created.
[root@localhost alcaal# lvs
LV      VG      Attr      LSize   Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
root    cl       -wi-ao---- <6,20g
swap    cl       -wi-ao---- 820,00m
newwar  raidvg  -wi-a----- 1,00g
```

resultado creación PV

Paso IV - Encriptar

Encriptamos mediante Luks on Lvm. Se encripta 1 a 1 cada LV. Podrían así disponer de una contraseña diferente cada uno. (Puede realizarse antes de crear /var).

- **cryptsetup luksFormat /dev/mapper/raidvg-newvar**
- **YES**
- Indicar contraseña → *practicar,ISE*
- **cryptsetup luksOpen /dev/mapper/raidvg-newvar raidvg-newvar_crypt**

```
[root@localhost alcaal# cryptsetup luksFormat /dev/mapper/raidvg-newvar
WARNING!
=====
Esto sobrescribirá los datos en /dev/mapper/raidvg-newvar de forma irrevocable.

Are you sure? (Type uppercase yes): YES
Introduzca la frase contraseña de /dev/mapper/raidvg-newvar:
Verifique la frase contraseña:
[root@localhost alcaal#
[root@localhost alcaal#
[root@localhost alcaal#
[root@localhost alcaal# cryptsetup luksOpen /dev/mapper/raidvg-newvar raidvg-newvar_crypt
Introduzca la frase contraseña de /dev/mapper/raidvg-newvar:
[root@localhost alcaal# lsblk
```

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINT
sda	8:0	0	8G	0	disk	
└─sda1	8:1	0	1G	0	part	/boot
└─sda2	8:2	0	7G	0	part	
└─┬─cl-root	253:0	0	6,2G	0	lvm	/
└─┬─cl-swap	253:1	0	820M	0	lvm	[SWAP]
sdb	8:16	0	8G	0	disk	
└─sdb1	8:17	0	8G	0	part	
└─┬─md0	9:0	0	8G	0	raid1	
└─┬─raidvg-newvar	253:2	0	1G	0	lvm	
└─┬─raidvg-newvar_crypt	253:3	0	1008M	0	crypt	
sdc	8:32	0	8G	0	disk	
└─sdc1	8:33	0	8G	0	part	
└─┬─md0	9:0	0	8G	0	raid1	
└─┬─raidvg-newvar	253:2	0	1G	0	lvm	
└─┬─raidvg-newvar_crypt	253:3	0	1008M	0	crypt	
sr0	11:0	1	1024M	0	rom	

Paso V – Dar formato + Entrar en modo mantenimiento

Otorgamos un formato:

-mkfs -t ext4 /dev/mapper/raidvg-newvar_crypt

```
[root@localhost alcaal# mkfs -t ext4 /dev/mapper/raidvg-newvar_crypt
mke2fs 1.45.4 (23-Sep-2019)
Se está creando un sistema de ficheros con 258048 bloques de 4k y 64512 nodos-i
UUID del sistema de ficheros: 6ad2df87-c63e-4052-97dc-6574b569aac2
Respalos del superbloque guardados en los bloques:
    32768, 98304, 163840, 229376

Reservando las tablas de grupo: hecho
Escribiendo las tablas de nodos-i: hecho
Creando el fichero de transacciones (4096 bloques): hecho
Escribiendo superbloques y la información contable del sistema de ficheros: hecho
```

resultado de dar formato

Entramos en modo mantenimiento:

- **systemctl isolate rescue**
- Entrar como **root**
- **systemctl isolate rescue**
- **systemctl status** para comprobar.

Paso VI – Montaje

- **mkdir /mnt/newvar**
- **mount /dev/mapper/raidvg-newvar_crypt /mnt/newvar**
- **cp -a /var/. /mnt/newvar**
- **ls -laZ /mnt/newvar** para comprobar.

```
[root@localhost ~]# mkdir /mnt/newvar
[root@localhost ~]# mount /dev/mapper/raidvg-newvar_crypt /mnt/newvar
[ 645.219155] EXT4-fs (dm-3): mounted filesystem with ordered data mode. Opts: (null)
[root@localhost ~]# cp -a /var/. /mnt/newvar
[root@localhost ~]# ls -laZ /mnt/newvar
total 100
drwxr-xr-x. 22 root root system_u:object_r:var_t:s0      4096 oct 9 07:03 .
drwxr-xr-x. 3 root root system_u:object_r:mnt_t:s0      20 oct 9 07:14 ..
drwxr-xr-x. 2 root root system_u:object_r:acct_data_t:s0 4096 oct 9 06:42 account
drwxr-xr-x. 2 root root system_u:object_r:var_t:s0      4096 may 10 2019 adm
drwxr-xr-x. 8 root root system_u:object_r:var_t:s0      4096 oct 9 06:42 cache
drwxr-xr-x. 2 root root system_u:object_r:kdump_crash_t:s0 4096 abr 24 2020 crash
drwxr-xr-x. 3 root root system_u:object_r:system_db_t:s0 4096 oct 9 06:42 db
drwxr-xr-x. 3 root root system_u:object_r:var_t:s0      4096 oct 9 06:41 empty
drwxr-xr-x. 2 root root system_u:object_r:public_content_t:s0 4096 may 10 2019 ftp
drwxr-xr-x. 2 root root system_u:object_r:games_data_t:s0 4096 may 10 2019 games
drwxr-xr-x. 2 root root system_u:object_r:var_t:s0      4096 may 10 2019 gopher
drwxr-xr-x. 3 root root system_u:object_r:var_t:s0      4096 oct 9 06:40 kerberos
drwxr-xr-x. 29 root root system_u:object_r:var_lib_t:s0  4096 oct 9 06:44 lib
drwxr-xr-x. 2 root root system_u:object_r:var_t:s0      4096 may 10 2019 local
lrwxrwxrwx. 1 root root system_u:object_r:var_lock_t:s0  11 oct 9 06:39 lock -> ../run/lock
k
drwxr-xr-x. 9 root root system_u:object_r:var_log_t:s0    4096 oct 9 07:03 log
drwx-----. 2 root root system_u:object_r:unlabeled_t:s0 16384 oct 9 07:12 lost+found
lrwxrwxrwx. 1 root root system_u:object_r:mail_spool_t:s0 10 may 10 2019 mail -> spool/mail
drwxr-xr-x. 2 root root system_u:object_r:var_t:s0      4096 may 10 2019 nis
drwxr-xr-x. 2 root root system_u:object_r:var_t:s0      4096 may 10 2019 opt
drwxr-xr-x. 2 root root system_u:object_r:var_t:s0      4096 may 10 2019 preserve
lrwxrwxrwx. 1 root root system_u:object_r:var_run_t:s0    6 oct 9 06:39 run -> ../run
drwxr-xr-x. 7 root root system_u:object_r:var_spool_t:s0  4096 oct 9 06:42 spool
drwxrwxrwt. 2 root root system_u:object_r:tmp_t:s0      4096 oct 9 07:13 tmp
-rw-r--r--. 1 root root system_u:object_r:etc_runtime_t:s0 208 oct 9 06:39 .updated
drwxr-xr-x. 2 root root system_u:object_r:var_yp_t:s0    4096 may 10 2019 yp
```

- mv /var/ /var_old
- ls / para comprobar.
- mkdir /var
- restorecon /var para recuperar el contexto.
- umount /mnt/newvar

```
[root@localhost ~]# mv /var/ /var_old
[root@localhost ~]# ls /
bin  dev  home  lib64  mnt  proc  run  srv  tmp  var_old
boot  etc  lib  media  opt  root  sbin  sys  usr
[root@localhost ~]# mkdir /var
[root@localhost ~]# restorecon /var
[root@localhost ~]# umount /mnt/newvar
[root@localhost ~]# lsblk
```

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINT
sda	8:0	0	8G	0	disk	
└─sda1	8:1	0	1G	0	part	/boot
└─sda2	8:2	0	7G	0	part	
└─┬─cl-root	253:0	0	6,2G	0	lvm	/
└─└─cl-swap	253:1	0	820M	0	lvm	[SWAP]
sdb	8:16	0	8G	0	disk	
└─sdb1	8:17	0	8G	0	part	
└─┬─md0	9:0	0	8G	0	raid1	
└─└─┬─raidvg-newvar	253:2	0	1G	0	lvm	
└─└─└─raidvg-newvar_crypt	253:3	0	1008M	0	crypt	
sdc	8:32	0	8G	0	disk	
└─sdc1	8:33	0	8G	0	part	
└─┬─md0	9:0	0	8G	0	raid1	
└─└─┬─raidvg-newvar	253:2	0	1G	0	lvm	
└─└─└─raidvg-newvar_crypt	253:3	0	1008M	0	crypt	
sr0	11:0	1	1024M	0	rom	

```
[root@localhost ~]# mount -a
[ 937.611729] EXT4-fs (dm-3): mounted filesystem with ordered data mode. Opts: (null)
[root@localhost ~]# lsblk
```

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINT
sda	8:0	0	8G	0	disk	
└─sda1	8:1	0	1G	0	part	/boot
└─sda2	8:2	0	7G	0	part	
└─┬─cl-root	253:0	0	6,2G	0	lvm	/
└─└─cl-swap	253:1	0	820M	0	lvm	[SWAP]
sdb	8:16	0	8G	0	disk	
└─sdb1	8:17	0	8G	0	part	
└─┬─md0	9:0	0	8G	0	raid1	
└─└─┬─raidvg-newvar	253:2	0	1G	0	lvm	
└─└─└─raidvg-newvar_crypt	253:3	0	1008M	0	crypt	/var
sdc	8:32	0	8G	0	disk	
└─sdc1	8:33	0	8G	0	part	
└─┬─md0	9:0	0	8G	0	raid1	
└─└─┬─raidvg-newvar	253:2	0	1G	0	lvm	
└─└─└─raidvg-newvar_crypt	253:3	0	1008M	0	crypt	/var
sr0	11:0	1	1024M	0	rom	

resultado

Paso VII – Editar ficheros

- vi /etc/fstab

```
##
## /etc/fstab
## Created by anaconda on Sat Oct  9 06:39:16 2021
##
## Accessible filesystems, by reference, are maintained under '/dev/disk/'.
## See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
##
## After editing this file, run 'systemctl daemon-reload' to update systemd
## units generated from this file.
##
/dev/mapper/cl-root      /                    xfs      defaults      0 0
UUID=69616e2b-e277-4db5-b277-f8618f1d52ef /boot              ext4      defaults      1 2
/dev/mapper/cl-swap      swap                swap      defaults      0 0
/dev/mapper/raidvg-newvar_crypt /var               ext4      defaults      0 0_
```

- mount -a

- blkid

```
[root@localhost ~]# blkid
/dev/mapper/cl-root: UUID="6faf27e6-0088-4104-b6fb-697f1404fa48" TYPE="xfs"
/dev/sda2: UUID="ZPr61s-Q28g-c8AS-xd1E-ePeM-vk5B-dwhph7" TYPE="LVM2_member" PARTUUID="c8edb759-02"
/dev/sda1: UUID="69616e2b-e277-4db5-b277-f8618f1d52ef" TYPE="ext4" PARTUUID="c8edb759-01"
/dev/sdb1: UUID="8b641090-1c65-b87c-bc13-5edb0a2c0082" UUID_SUB="1e5b3bca-e674-4bf3-ccc1-d5aafa706db7" LABEL="localhost.localdomain:0" TYPE="linux_raid_member" PARTUUID="0972fd37-01"
/dev/sdc1: UUID="8b641090-1c65-b87c-bc13-5edb0a2c0082" UUID_SUB="07155348-a6ec-ca19-1016-21cf40c315b8" LABEL="localhost.localdomain:0" TYPE="linux_raid_member" PARTUUID="7c1e2ba8-01"
/dev/mapper/cl-swap: UUID="1e553949-ad54-4007-806e-23a66f620a21" TYPE="swap"
/dev/md0: UUID="PT60QZ-wW6N-UUCn-HAJu-aart-M2Uw-J311C2" TYPE="LVM2_member"
/dev/mapper/raidvg-newvar: UUID="12971b42-0f25-4d9f-9219-a9c810876d11" TYPE="crypto_LUKS"
/dev/mapper/raidvg-newvar_crypt: UUID="6ad2df87-c63e-4052-97dc-6574b569aac2" TYPE="ext4"
[root@localhost ~]# blkid | grep crypto >> /etc/crypttab
```

- blkid | grep crypto >> /etc/crypttab

- vi /etc/crypttab

```
raidvg-newvar_crypt UUID=12971b42-0f25-4d9f-9219-a9c810876d11 none_
```

Escribir esta línea en “crypttab”

- reboot

```
talcaa@localhost ~]$ lsblk
NAME                                MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINT
sda                                 8:0    0   8G  0 disk
├─sda1                             8:1    0   1G  0 part  /boot
├─sda2                             8:2    0   7G  0 part
├─┌cl-root                         253:0    0  6,2G  0 lvm    /
│ └─cl-swap                       253:1    0  820M  0 lvm    [SWAP]
└─sdb                             8:16    0   8G  0 disk
   ├─sdb1                         8:17    0   8G  0 part
   │ └─md0                        9:0     0   8G  0 raid1
   │   └─raidvg-newvar           253:2    0   1G  0 lvm
   │     └─raidvg-newvar_crypt  253:3    0 1000M  0 crypt /var
   └─sdc                         8:32    0   8G  0 disk
      ├─sdc1                     8:33    0   8G  0 part
      │ └─md0                    9:0     0   8G  0 raid1
      │   └─raidvg-newvar       253:2    0   1G  0 lvm
      │     └─raidvg-newvar_crypt 253:3    0 1000M  0 crypt /var
      └─sr0                      11:0    1 1024M  0 rom
```

Paso VIII – Montar interfaz de red



Adaptador 2: Intel PRO/1000 MT Desktop (Adaptador solo anfitrión, «VirtualBox Host-Only Ethernet Adapter»)

```
[alcaa@localhost ~]$ cd /etc/sysconfig/network-scripts
[alcaa@localhost network-scripts]$ ls
ifcfg-enp0s3
[alcaa@localhost network-scripts]$ sudo touch ifcfg-enp0s8
[sudo] password for alcaa:
[alcaa@localhost network-scripts]$ ls
ifcfg-enp0s3  ifcfg-enp0s8
[alcaa@localhost network-scripts]$ _
```

```
TYPE=Ethernet
BOOTPROTO=none
NAME=enp0s8
DEVICE=enp0s8
ONBOOT=yes
IPADDR=192.168.56.110
NETMASK=255.255.255.0 _
```