

Configuración y despliegue de un servidor Apache en EC2 (AWS) con gestión de firewall, volúmenes LVM, y reglas de red personalizadas

LVM : Se creó en **Elastic Block Store** en AWS y se asoció a la Instancia de EC2

Volumen de 1GB asociado a la instancia en AWS para dar formato al disco y luego asignarla a un filesystem:

The screenshot shows the AWS Management Console interface. On the left, there's a navigation sidebar with sections like 'Imagenes', 'Elastic Block Store' (selected), 'Red y seguridad', and 'Equilibrio de carga'. The main content area is titled 'Volúmenes (2) Información'. It lists two volumes: 'vol-09768d8caece6a94' (1 GiB gp2) and 'vol-05652ca816da15da4' (8 GiB gp2). A message at the top says 'Volumen adjuntado correctamente vol-09768d8caece6a94 a la instancia i-0e465eedeb79b28c3.'. Below the table, there's a summary section for snapshots and a note about the default Data Lifecycle Manager policy.

```
[ec2-user@ip-172-31-89-19 ~]$ clear
[ec2-user@ip-172-31-89-19 ~]$ lsblk
NAME   MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
xvda   202:0    0  8G  0 disk
└─xvdal 202:1    0  8G  0 part /
[ec2-user@ip-172-31-89-19 ~]$ curl http://169.254.169.254/latest/meta-data/placement/availability-zone
[ec2-user@ip-172-31-89-19 ~]$ curl http://169.254.169.254/latest/meta-data/placement/availability-zone
[ec2-user@ip-172-31-89-19 ~]$ lsblk
NAME   MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
xvda   202:0    0  8G  0 disk
└─xvdal 202:1    0  8G  0 part /
xvdb   202:16   0  1G  0 disk
[ec2-user@ip-172-31-89-19 ~]$ sudo task client_loop: send disconnect: Connection reset
PS C:\Users\mariaOneDrive\Documents> ssh -i "Lab-key.pem" ec2-user@ec2-54-85-206-106.compute-1.amazonaws.com
Last login: Wed Apr  9 16:28:40 2025 from host-200-61-165-39.iplanisp.com.ar
# 
# \_\_###\_\_ Amazon Linux 2
# \_\_####\_\_ AL2 End of Life is 2026-06-30.
# \#\_\_-->
# \_\_/\_\_ / A newer version of Amazon Linux is available!
# \_\_/\_\_ / Amazon Linux 2023, GA and supported until 2028-03-15.
# \_\_/\_\_ / https://aws.amazon.com/linux/amazon-linux-2023/
```

Formatear Disco

```
[ec2-user@ip-172-31-89-19 ~]$ sudo fdisk /dev/xvdb
Welcome to fdisk (util-linux 2.30.2).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

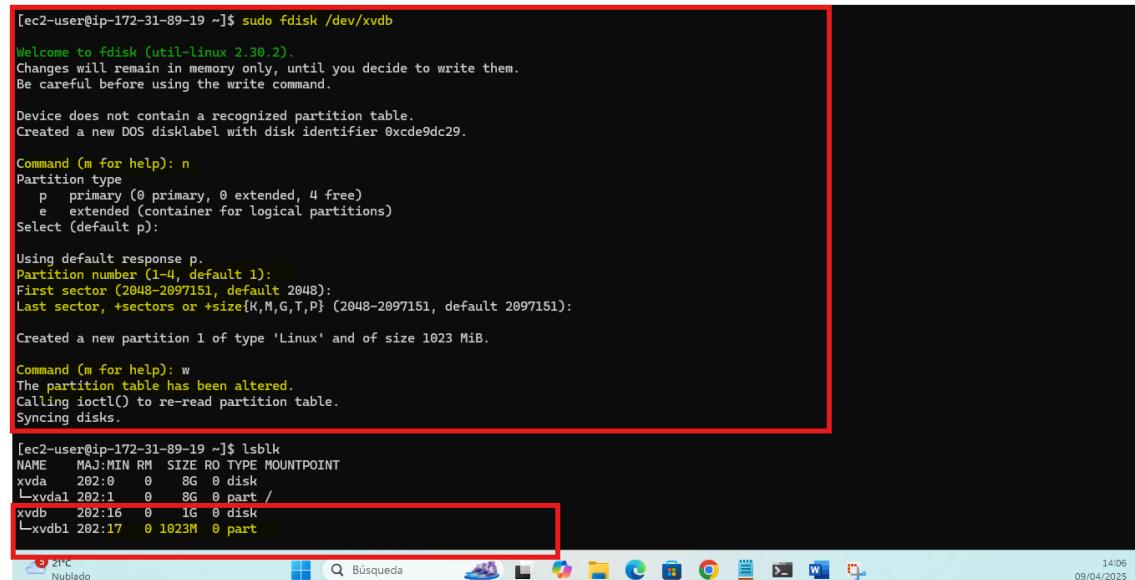
Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0xcded9dc29.

Command (m for help): n
Partition type
  p   primary (0 primary, 0 extended, 4 free)
  e   extended (container for logical partitions)
Select (default p):

Using default response p.
Partition number (1-4, default 1):
First sector (2048-2097151, default 2048):
Last sector, +sectors or +size{K,M,G,T,P} (2048-2097151, default 2097151):
Created a new partition 1 of type 'Linux' and of size 1023 MiB.

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

[ec2-user@ip-172-31-89-19 ~]$ lsblk
NAME    MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
xvda    202:0    0   8G  0 disk
└─xvda1 202:1    0   8G  0 part /
xvdb    202:16   0   1G  0 disk
└─xvdb1 202:17   0 1023M 0 part

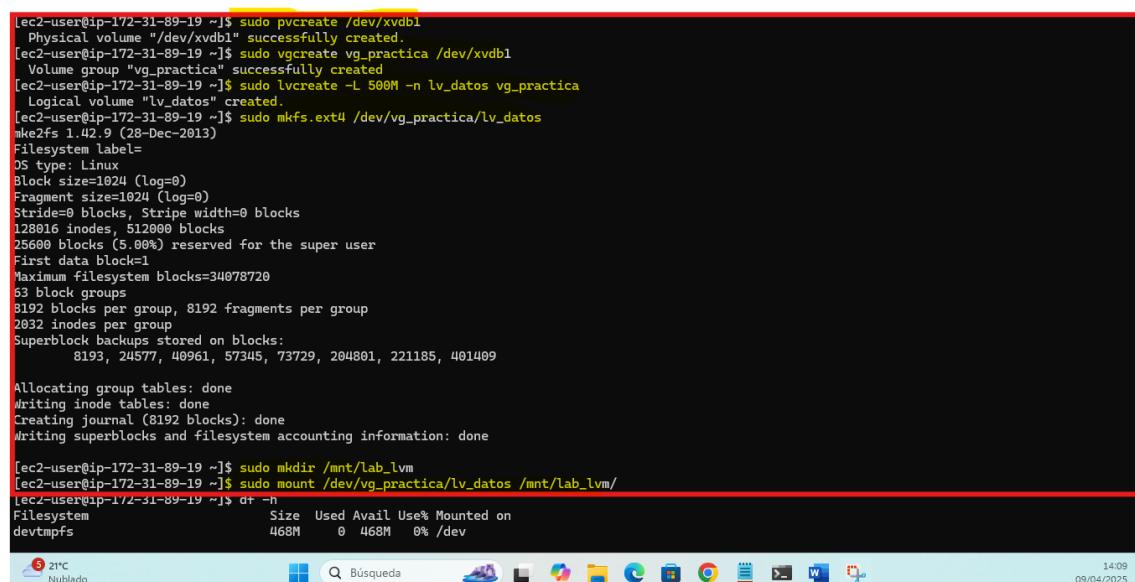

```

Crear PV, VG, LV Directorio y montarlo

```
[ec2-user@ip-172-31-89-19 ~]$ sudo pvcreate /dev/xvdb1
  Physical volume "/dev/xvdb1" successfully created.
[ec2-user@ip-172-31-89-19 ~]$ sudo vgcreate vg_practica /dev/xvdb1
  Volume group "vg_practica" successfully created
[ec2-user@ip-172-31-89-19 ~]$ sudo lvcreate -L 500M -n lv_datos vg_practica
  Logical volume "lv_datos" created.
[ec2-user@ip-172-31-89-19 ~]$ sudo mkfs.ext4 /dev/vg_practica/lv_datos
mkfs.ext4 1.42.9 (28-Dec-2013)
Filesystem label=
OS type: Linux
Block size=1024 (log=0)
Fragment size=1024 (log=0)
Stride=0 blocks, Stripe width=0 blocks
128016 inodes, 512000 blocks
25600 blocks (5.00%) reserved for the super user
First data block=1
Maximum filesystem blocks=34078720
63 block groups
8192 blocks per group, 8192 fragments per group
2032 inodes per group
Superblock backups stored on blocks:
      8193, 24577, 40961, 57345, 73729, 204801, 221185, 401409

Allocating group tables: done
Writing inode tables: done
Creating journal (8192 blocks): done
Writing superblocks and filesystem accounting information: done

[ec2-user@ip-172-31-89-19 ~]$ sudo mkdir /mnt/lab_lvm
[ec2-user@ip-172-31-89-19 ~]$ sudo mount /dev/vg_practica/lv_datos /mnt/lab_lvm/
[ec2-user@ip-172-31-89-19 ~]$ df -h
Filesystem              Size  Used Avail Use% Mounted on
devtmpfs                468M   0  468M  0% /dev
tmpfs                  477M   0  477M  0% /dev/shm
tmpfs                  477M  452K  476M  1% /run
tmpfs                  477M   0  477M  0% /sys/fs/cgroup
/dev/xvdb1               8.0G  1.9G  6.2G 24% /
tmpfs                  96M   0   96M  0% /run/user/1000
/dev/mapper/vg_practica-lv_datos  474M  14K  445M  1% /mnt/lab_lvm


```

```
[ec2-user@ip-172-31-89-19 ~]$ df -h
Filesystem              Size  Used Avail Use% Mounted on
devtmpfs                468M   0  468M  0% /dev
tmpfs                  477M   0  477M  0% /dev/shm
tmpfs                  477M  452K  476M  1% /run
tmpfs                  477M   0  477M  0% /sys/fs/cgroup
/dev/xvdb1               8.0G  1.9G  6.2G 24% /
tmpfs                  96M   0   96M  0% /run/user/1000
/dev/mapper/vg_practica-lv_datos  474M  14K  445M  1% /mnt/lab_lvm
[ec2-user@ip-172-31-89-19 ~]$ date
Wed Apr  9 16:54:23 UTC 2025
[ec2-user@ip-172-31-89-19 ~]$
```

Instalar Apache

```
[ec2-user@ip-172-31-89-19 ~]$ sudo yum install httpd -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core
Resolving Dependencies
--> Running transaction check
--> Package httpd.x86_64 0:2.4.62-1.amzn2.0.2 will be installed
--> Processing Dependency: httpd-filesystem = 2.4.62-1.amzn2.0.2 for package: httpd-2.4.62-1.amzn2.0.2.x86_64
--> Processing Dependency: httpd-tools = 2.4.62-1.amzn2.0.2 for package: httpd-2.4.62-1.amzn2.0.2.x86_64
--> Processing Dependency: /etc/nime.types for package: httpd-2.4.62-1.amzn2.0.2.x86_64
--> Processing Dependency: httpd-filesystem for package: httpd-2.4.62-1.amzn2.0.2.x86_64
--> Processing Dependency: mod_http2 for package: httpd-2.4.62-1.amzn2.0.2.x86_64
--> Processing Dependency: system-logos-httdp for package: httpd-2.4.62-1.amzn2.0.2.x86_64
--> Processing Dependency: libapr-1.so()(64bit) for package: httpd-2.4.62-1.amzn2.0.2.x86_64
--> Processing Dependency: libaprutil-1.so()(64bit) for package: httpd-2.4.62-1.amzn2.0.2.x86_64
--> Running transaction check
--> Package apr.x86_64 0:1.7.2-1.amzn2.0.1 will be installed
--> Package apr-util.x86_64 0:1.6.3-1.amzn2.0.1 will be installed
--> Processing Dependency: apr-util-bdb(x86-64) = 1.6.3-1.amzn2.0.1 for package: apr-util-1.6.3-1.amzn2.0.1.x86_64
--> Package generic-logos-httdp.noarch 0:18.0.0-4.amzn2 will be installed
--> Package httpd-filesystem.noarch 0:2.4.62-1.amzn2.0.2 will be installed
--> Package httpd-tools.x86_64 0:2.4.62-1.amzn2.0.2 will be installed
--> Package mailcap.noarch 0:2.1.41-2.amzn2 will be installed
--> Package mod_http2.x86_64 0:1.15.19-1.amzn2.0.2 will be installed
--> Running transaction check
--> Package apr-util-bdb.x86_64 0:1.6.3-1.amzn2.0.1 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
| Package           | Arch      | Version        | Repository | Size
|=====|
| httpd            | x86_64   | 2.4.62-1.amzn2.0.2 | amzn2-core | 1.4 M
|=====|
| apr              | x86_64   | 1.7.2-1.amzn2.0.1 | amzn2-core | 130 k
| apr-util          | x86_64   | 1.6.3-1.amzn2.0.1 | amzn2-core | 101 k
| apr-util-bdb     | x86_64   | 1.6.3-1.amzn2.0.1 | amzn2-core | 22 k
| generic-logos-httdp | noarch  | 18.0.0-4.amzn2 | amzn2-core | 19 k
| httpd-filesystem | noarch  | 2.4.62-1.amzn2.0.2 | amzn2-core | 25 k
| httpd-tools       | x86_64   | 2.4.62-1.amzn2.0.2 | amzn2-core | 89 k
| mailcap           | noarch  | 2.1.41-2.amzn2 | amzn2-core | 31 k
| mod_http2         | x86_64   | 1.15.19-1.amzn2.0.2 | amzn2-core | 149 k
|=====|
Dependencies Resolved

=====
| Package           | Arch      | Version        | Repository | Size
|=====|
| httpd            | x86_64   | 2.4.62-1.amzn2.0.2 | amzn2-core | 1.4 M
|=====|
| apr              | x86_64   | 1.7.2-1.amzn2.0.1 | amzn2-core | 130 k
| apr-util          | x86_64   | 1.6.3-1.amzn2.0.1 | amzn2-core | 101 k
| apr-util-bdb     | x86_64   | 1.6.3-1.amzn2.0.1 | amzn2-core | 22 k
| generic-logos-httdp | noarch  | 18.0.0-4.amzn2 | amzn2-core | 19 k
| httpd-filesystem | noarch  | 2.4.62-1.amzn2.0.2 | amzn2-core | 25 k
| httpd-tools       | x86_64   | 2.4.62-1.amzn2.0.2 | amzn2-core | 89 k
| mailcap           | noarch  | 2.1.41-2.amzn2 | amzn2-core | 31 k
| mod_http2         | x86_64   | 1.15.19-1.amzn2.0.2 | amzn2-core | 149 k
|=====|
Transaction Summary
=====
Install 1 Package (+8 Dependent packages)

Total download size: 1.9 M
Installed size: 5.3 M
Downloading packages:
(1/9): apr-util-1.6.3-1.amzn2.0.1.x86_64.rpm | 101 kB 00:00:00
(2/9): apr-1.7.2-1.amzn2.0.1.x86_64.rpm | 130 kB 00:00:00
(3/9): apr-util-bdb-1.6.3-1.amzn2.0.1.x86_64.rpm | 22 kB 00:00:00
(4/9): generic-logos-httdp-18.0.0-4.amzn2.noarch.rpm | 19 kB 00:00:00
(5/9): httpd-filesystem-2.4.62-1.amzn2.0.2.noarch.rpm | 25 kB 00:00:00
(6/9): httpd-2.4.62-1.amzn2.0.2.x86_64.rpm | 1.4 MB 00:00:00
(7/9): httpd-tools-2.4.62-1.amzn2.0.2.x86_64.rpm | 89 kB 00:00:00
(8/9): mailcap-2.1.41-2.amzn2.noarch.rpm | 31 kB 00:00:00
(9/9): mod_http2-1.15.19-1.amzn2.0.2.x86_64.rpm | 149 kB 00:00:00
|=====|
Total                                         7.8 MB/s | 1.9 MB 00:00:00
|=====|
21°C Nublado                                     14:15
Búsqueda                                     09/04/2025
```

```
ec2-user@ip-172-31-89-19: ~ + - x 7.8 MB/s | 1.9 MB 00:00:00
Total
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : apr-1.7.2-1.amzn2.0.1.x86_64 1/9
  Installing : apr-util-bdb-1.6.3-1.amzn2.0.1.x86_64 2/9
  Installing : apr-util-1.6.3-1.amzn2.0.1.x86_64 3/9
  Installing : httpd-tools-2.4.62-1.amzn2.0.2.x86_64 4/9
  Installing : httpd-filesystem-2.4.62-1.amzn2.0.2.noarch 5/9
  Installing : generic-logos-htpd-18.0.0-4.amzn2.noarch 6/9
  Installing : mailcap-2.1.41-2.amzn2.noarch 7/9
  Installing : mod_http2-1.15.19-1.amzn2.0.2.x86_64 8/9
  Installing : httpd-2.4.62-1.amzn2.0.2.x86_64 9/9
  Verifying : apr-1.7.2-1.amzn2.0.1.x86_64 1/9
  Verifying : apr-util-bdb-1.6.3-1.amzn2.0.1.x86_64 2/9
  Verifying : httpd-2.4.62-1.amzn2.0.2.x86_64 3/9
  Verifying : mod_http2-1.15.19-1.amzn2.0.2.x86_64 4/9
  Verifying : apr-util-1.6.3-1.amzn2.0.1.x86_64 5/9
  Verifying : mailcap-2.1.41-2.amzn2.noarch 6/9
  Verifying : generic-logos-htpd-18.0.0-4.amzn2.noarch 7/9
  Verifying : httpd-tools-2.4.62-1.amzn2.0.2.x86_64 8/9
  Verifying : httpd-filesystem-2.4.62-1.amzn2.0.2.noarch 9/9

Installed:
  httpd.x86_64 0:2.4.62-1.amzn2.0.2

Dependency Installed:
  apr.x86_64 0:1.7.2-1.amzn2.0.1           apr-util.x86_64 0:1.6.3-1.amzn2.0.1           apr-util-bdb.x86_64 0:1.6.3-1.amzn2.0.1
  generic-logos-htpd.noarch 0:18.0.0-4.amzn2  httpd-filesystem.noarch 0:2.4.62-1.amzn2.0.2   httpd-tools.x86_64 0:2.4.62-1.amzn2.0.2
  mailcap.noarch 0:2.1.41-2.amzn2             mod_http2.x86_64 0:1.15.19-1.amzn2.0.2

Complete!
[ec2-user@ip-172-31-89-19 ~]$
```



Habilitar Servicio y Verificar Estado

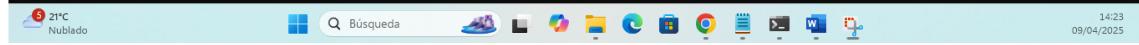
```
[ec2-user@ip-172-31-89-19 ~]$ sudo systemctl start httpd
[ec2-user@ip-172-31-89-19 ~]$ sudo systemctl enable httpd
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
[ec2-user@ip-172-31-89-19 ~]$ sudo systemctl status httpd
● httpd.service - The Apache HTTP Server
  Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
    Active: active (running) since Wed 2025-04-09 17:16:06 UTC; 19s ago
      Docs: man:httpd.service(8)
    Main PID: 3917 (httpd)
   Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec: 0 B/sec"
   CGroup: /system.slice/httpd.service
           ├─3917 /usr/sbin/httpd -DFOREGROUND
           ├─3919 /usr/sbin/httpd -DFOREGROUND
           ├─3920 /usr/sbin/httpd -DFOREGROUND
           ├─3921 /usr/sbin/httpd -DFOREGROUND
           ├─3922 /usr/sbin/httpd -DFOREGROUND
           └─3923 /usr/sbin/httpd -DFOREGROUND

Apr 09 17:16:06 ip-172-31-89-19.ec2.internal systemd[1]: Starting The Apache HTTP Server...
Apr 09 17:16:06 ip-172-31-89-19.ec2.internal systemd[1]: Started The Apache HTTP Server.
[ec2-user@ip-172-31-89-19 ~]$
```



Configurar Firewall

```
[ec2-user@ip-172-31-89-19 ~]$ sudo firewall-cmd --permanent --add-service=http
success
[ec2-user@ip-172-31-89-19 ~]$ sudo firewall-cmd --reload
success
[ec2-user@ip-172-31-89-19 ~]$
```



Configuración de Regla de Seguridad de entrada habilitar http en EC2

The screenshot shows the AWS EC2 Instances page. A yellow circle highlights the 'Seguridad' tab in the instance details panel. The instance listed is 'i-0e465eedeb79b28c3 (lab-redhat-apache)'.

Nombre	ID de la instancia	Estado de la i...	Tipo de inst...	Comprobación de	Estado de la al...	Zona de di...
lab-redhat-ap...	i-0e465eedeb79b28c3	En ejecución	t2.micro	2/2 comprobacion	Ver alarmas +	us-east-1a

The screenshot shows the AWS Security Groups page. A red box highlights a green notification message: 'Las reglas del grupo de seguridad de entrada se han modificado correctamente en el grupo de seguridad (sg-072bed66e24505f2a | launch-wizard-1)'. The instance details panel shows the security group 'sg-072bed66e24505f2a - launch-wizard-1'.

Nombre del grupo de seguridad	ID del grupo de seguridad	Descripción	ID de la VPC
launch-wizard-1	sg-072bed66e24505f2a	launch-wizard-1 created 2025-04-09T16:13:48.706Z	vpc-0254133fe1f13941e

The screenshot shows the AWS EC2 Groups Security page. A green success message box at the top right states: "Las reglas del grupo de seguridad de entrada se han modificado correctamente en el grupo de seguridad (sg-072bed66e24505f2a | launch-wizard-1)". Below this, a table titled "Reglas de entrada (2)" lists two rules:

Tipo	Protocolo	Intervalo de puertos	Origen	Descripción
SSH	TCP	22	0.0.0.0/0	-
HTTP	TCP	80	0.0.0.0/0	-

The left sidebar includes sections for EC2, Instances, and Images. The Instances section is expanded, showing options like Instancias, Tipos de instancia, and Instancias reservadas. The Images section is also expanded, showing Catalogo de AMI.

The screenshot shows a web browser window with the address bar set to "54.85.206.106". The main content area displays the Apache welcome message: "Hola desde Apache en EC2". The browser interface includes a search bar, a toolbar with various icons, and a status bar at the bottom indicating the date and time.

