

The screenshot shows the AWS EC2 Quick Start interface. In the top navigation bar, there are tabs for "Launch an instance | EC2 Manager", "Editing AWStraining2022/04-", and "Font Generator & Free Custom". The main content area is titled "Quick Start" and features a grid of icons for different operating systems: Amazon Linux, macOS, Ubuntu, Windows, Red Hat, and SUSE. A search bar is at the top right. To the right of the grid, there is a section titled "Browse more AMIs" with a link to "AWS Marketplace". Below the grid, a specific AMI is selected: "Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type". The details shown include the AMI ID (ami-074dc0a6fc764218), Virtualization type (hvm), ENA enabled status, and Root device type (ebs). The status is listed as "Free tier eligible". The "Description" section indicates it's an "Amazon Linux 2 Kernel 5.10 AMI 2.0.20221103.3 x86_64 HVM gp2". The "Architecture" is set to "64-bit (x86)" and the "AMI ID" is "ami-074dc0a6fc764218", with a "Verified provider" badge.

The screenshot shows the "Launch instance" wizard on the AWS EC2 homepage. The first step, "Instance type", is selected. It shows the "t2.large" instance type, which belongs to the t2 family and has 2 vCPU and 8 GiB Memory. The On-Demand Linux pricing is 0.0992 USD per Hour, and the On-Demand Windows pricing is 0.1272 USD per Hour. There is a "Compare instance types" link. The second step, "Key pair (login)", is shown with a note that a key pair is required for secure connection. A dropdown menu for "Key pair name - required" is open, showing "Select" and a "Create new key pair" button. The third step, "Network settings", is partially visible at the bottom. The footer includes standard links like Feedback, Privacy, Terms, and Cookie preferences, along with system status information like the date (03-12-2022) and time (12:20).

The screenshot shows the AWS Management Console interface for launching an EC2 instance. The main focus is the 'Configure storage' section, where a root volume of 20 GiB is selected as gp2 (General Purpose SSD). A tooltip indicates that free-tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. Below this, there are sections for adding new volumes and file systems, and advanced details.

The screenshot shows an EC2 Instance Connect terminal session on an Amazon Linux 2 AMI. The user is running the fdisk -l command to list disk partitions. The output shows one partition on /dev/xvda: 20 GiB, 21474836480 bytes, 41943040 sectors. The device table at the bottom lists /dev/xvda1 (4096-41943006) as a 20G Linux filesystem and /dev/xvda128 (2048-4095) as a 1M BIOS boot partition.

```
https://aws.amazon.com/amazon-linux-2/
1 package(s) needed for security, out of 1 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-12-165 ec2-user]# fdisk -l
Disk /dev/xvda: 20 GiB, 21474836480 bytes, 41943040 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: gpt
Disk identifier: DA90AB95-8C11-4BAE-9157-C48213FBAD0C

Device      Start    End  Sectors Size Type
/dev/xvda1   4096 41943006 41938911 20G Linux filesystem
/dev/xvda128  2048   4095     2048  1M  BIOS boot

Partition table entries are not in disk order.
[root@ip-172-31-12-165 ec2-user]#
```

The screenshot shows the AWS Management Console with the URL <https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#Volumes>. The left sidebar is expanded to show 'Services' and 'Elastic Block Store'. Under EBS, 'Volumes' is selected. A modal message box is displayed, stating: 'You can now create Amazon Data Lifecycle Manager policies to automate snapshot management directly from this screen. Select the volumes to back up, and then choose Actions, Create snapshot lifecycle policy. For more information, see the Knowledge Center article.' Below the message is a table titled 'Volumes (1)' with one row:

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot
-	vol-0f876688ea84e89a6	gp2	20 GiB	100	-	snap-0f0f2d1...

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The screenshot shows the AWS Management Console with the URL <https://ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-009df66...>. The terminal window displays a command-line interface with the prompt 'okjddjbbnbnxbjk'. The status bar at the bottom indicates: © 2022, Amazon Internet Services Private Ltd. or its affiliates. Privacy Terms Cookie preferences 12:49 03-12-2022.

https://aws.amazon.com/amazon-linux-2/

1 package(s) needed for security, out of 1 available
Run "sudo yum update" to apply all updates.

```
top - 07:30:31 up 39 min, 1 user, load average: 2.14, 1.16, 0.47
Tasks: 113 total, 2 running, 62 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.9 us, 2.2 sy, 0.0 ni, 13.9 id, 82.3 wa, 0.0 hi, 0.2 si, 0.4 st
KiB Mem : 8137608 total, 123528 free, 4257188 used, 3756892 buff/cache
KiB Swap : 0 total, 0 free, 0 used. 3633004 avail Mem
```

FID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+ COMMAND
4737	root	20	0	4308192	4.0g	1288	R	22.9	51.2	0:41.12 vim
24	root	20	0	0	0	0	D	1.3	0.0	0:02.20 kworker/u30:1+f
864	root	20	0	0	0	0	S	1.3	0.0	0:02.29 kswapd0
4740	root	20	0	0	0	0	I	0.7	0.0	0:01.08 kworker/0:0-xfs
8	root	0	-20	0	0	0	I	0.3	0.0	0:00.81 kworker/0:1h-kb
1764	root	20	0	0	0	0	S	0.3	0.0	0:00.61 xfsaid/xvda1
5211	root	20	0	168940	4360	3720	R	0.3	0.1	0:00.02 top

i-009df66ec407ba285 (advanceEBS)
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```
aws Services sudo s
Tasks: 106 total, 1 running, 58 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.0 sy, 0.0 ni,100.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 8137608 total, 7479876 free, 90060 used, 567672 buff/cache
KiB Swap : 0 total, 0 free, 0 used. 7817156 avail Mem

 PID USER      PR  NI    VIRT    RES   SHR S %CPU %MEM     TIME+ COMMAND
  1 root      20   0 123508  5512 3968 S  0.0  0.1  0:01.83 systemd
  2 root      20   0          0    0   0 S  0.0  0.0  0:00.00 kthreadd
  3 root      0 -20          0    0   0 I  0.0  0.0  0:00.00 rcu_gp
  4 root      0 -20          0    0   0 I  0.0  0.0  0:00.00 rcu_par_gp
  6 root      0 -20          0    0   0 I  0.0  0.0  0:00.00 kworker/0:0H-ev
  8 root      0 -20          0    0   0 I  0.0  0.0  0:00.03 kworker/0:1H-ev
  9 root      0 -20          0    0   0 I  0.0  0.0  0:00.00 mm_percpu_wq
 10 root     20   0          0    0   0 S  0.0  0.0  0:00.00 rcu_tasks_rude_
11 root     20   0          0    0   0 S  0.0  0.0  0:00.00 rcu_tasks_trace
12 root     20   0          0    0   0 S  0.0  0.0  0:00.02 ksoftirqd/0
13 root     20   0          0    0   0 I  0.0  0.0  0:00.04 rcu_sched
14 root     rt   0          0    0   0 S  0.0  0.0  0:00.00 migration/0
15 root     20   0          0    0   0 I  0.0  0.0  0:00.09 kworker/0:1-eve
16 root     20   0          0    0   0 S  0.0  0.0  0:00.00 cpuhp/0
[root@ip-172-31-12-165 data]# top
```

i-009df66ec407ba285 (advanceEBS)

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```
aws Services Q sudo s
exit
[ec2-user@ip-172-31-12-165 ~]$ sudo su -
Last login: Sat Dec 3 07:19:54 UTC 2022 on pts/0
[root@ip-172-31-12-165 ~]# ls
[root@ip-172-31-12-165 ~]# exit
logout
[ec2-user@ip-172-31-12-165 ~]$ sudo su
top - 07:25:23 up 34 min, 1 user, load average: 0.01, 0.01, 0.00
Tasks: 106 total, 1 running, 58 sleeping, 0 stopped, 0 zombie
%CPU(s): 0.0 us, 0.0 sy, 0.0 ni,100.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
Kib Mem : 8137608 total, 7475916 free, 90024 used, 567668 buff/cache
Kib Swap: 0 total, 0 free, 0 used. 7817196 avail Mem

 PID USER      PR  NI    VIRT    RES   SHR S %CPU %MEM     TIME+ COMMAND
  1 root      20   0 123508  5512  3968 S  0.0  0.1  0:01.83 systemd
  2 root      20   0      0      0      0 S  0.0  0.0  0:00.00 kthreadd
  3 root      0 -20      0      0      0 I  0.0  0.0  0:00.00 rcu_gp
  4 root      0 -20      0      0      0 I  0.0  0.0  0:00.00 rcu_par_gp
  6 root      0 -20      0      0      0 I  0.0  0.0  0:00.00 kworker/0:0H-ev
  8 root      0 -20      0      0      0 I  0.0  0.0  0:00.03 kworker/0:1H-ev
  9 root      0 -20      0      0      0 I  0.0  0.0  0:00.00 mm_percpu_wq
```

i-009df66ec407ba285 (advanceEBS)

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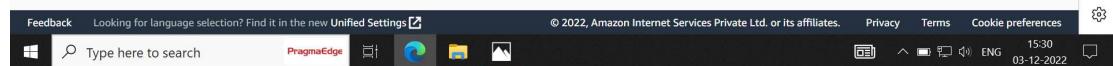


i-009df66ec407ba285 (advanceEBS)

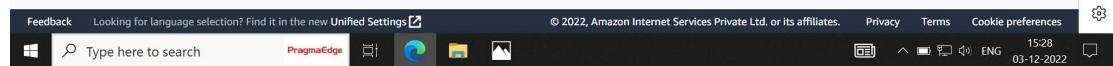
Public IPs: 65.0.131.117 Private IPs: 172.31.12.165



i-0f51f849178ffe4c1 (hdfast)



i-0f51f849178ffe4c1 (hdfast)



```
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-11-166 ~]$ sudo su
[root@ip-172-31-11-166 ec2-user]# ls
hi.txt
[root@ip-172-31-11-166 ec2-user]# mkdir kanna
[root@ip-172-31-11-166 ec2-user]# ls
hi.txt  kanna
[root@ip-172-31-11-166 ec2-user]# mount /dev/xvdf kanna
[root@ip-172-31-11-166 ec2-user]# df -hT
Filesystem      Type  Size  Used  Avail Use% Mounted on
/devtmpfs       devtmpfs 3.9G   0    3.9G  0% /dev
tmpfs          tmpfs   3.9G   0    3.9G  0% /dev/shm
tmpfs          tmpfs   3.9G  420K  3.9G  1% /run
tmpfs          tmpfs   3.9G   0    3.9G  0% /sys/fs/cgroup
/dev/xvdal      xfs    30G  2.6G  28G  9% /
tmpfs          tmpfs   795M   0   795M  0% /run/user/1000
/dev/xvdf      ext4   492G  24K  467G  1% /home/ec2-user/kanna
[root@ip-172-31-11-166 ec2-user]# cd kanna/
[root@ip-172-31-11-166 kanna]# fio
bash: fio: command not found
[root@ip-172-31-11-166 kanna]# yum install fio -y
```

i-0f51f849178ffe4c1 (hdfast)

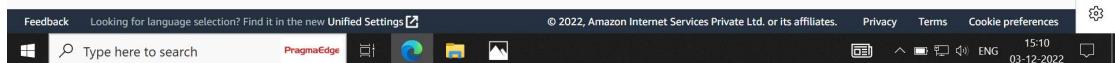
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```
=          crc=1      finobt=1 spinodes=0
data      =          bsize=4096  blocks=5242363, imaxpct=25
=          sunit=0    swidth=0 blks
naming    =version 2  bsize=4096  ascii-ci=0 fttype=1
log       =internal  bsize=4096  blocks=2560, version=2
=          sectsz=512  sunit=0 blks, lazy-count=1
realtime  =none     extsz=4096  blocks=0, rtextents=0
data blocks changed from 5242363 to 7863803
[root@ip-172-31-11-166 ec2-user]# df -hT
Filesystem      Type  Size  Used  Avail Use% Mounted on
/devtmpfs       devtmpfs 3.9G   0    3.9G  0% /dev
tmpfs          tmpfs   3.9G   0    3.9G  0% /dev/shm
tmpfs          tmpfs   3.9G  420K  3.9G  1% /run
tmpfs          tmpfs   3.9G   0    3.9G  0% /sys/fs/cgroup
/dev/xvdal      xfs    30G  1.6G  29G  6% /
tmpfs          tmpfs   795M   0   795M  0% /run/user/1000
[root@ip-172-31-11-166 ec2-user]# dd if=/dev/zero of=hi.txt bs=1G count=1 oflag=dsync
1+0 records in
1+0 records out
1073741824 bytes (1.1 GB) copied, 8.24415 s, 130 MB/s
[root@ip-172-31-11-166 ec2-user]#
```

i-0f51f849178ffe4c1 (hdfast)

PublicIPs: 13.235.69.39 PrivateIPs: 172.31.11.166



The screenshot shows two windows side-by-side. The left window is an EC2 Instance Connect session for an instance named 'The Eshwar Kannan'. It displays terminal output showing disk details:

```
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/xvdd: 4 GiB, 4294967296 bytes, 8388608 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x380addb

Device     Boot Start      End  Sectors Size Id Type
/dev/xvdd1        2048 41945087 41943040 20G 83 Linux
[root@ip-172-31-12-165 ~]#
```

Below the terminal, it shows the instance ID 'i-009df66ec407ba285 (advanceEBS)' and its public and private IP addresses.

The right window is the 'Create volume' dialog from the AWS Management Console. It is configured for a 'Cold HDD (sc1)' volume type, 150 GiB size, and 'ap-south-1b' availability zone. The 'Snapshot ID - optional' field contains the placeholder 'Don't create volume from a snapshot'.

Created a new partition 1 of type 'Linux' and of size 100 GiB.

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

[root@ip-172-31-12-165 ~]# mkfs.xfs /dev/xvdh
mkfs.xfs: /dev/xvdh appears to contain a partition table (dos).
mkfs.xfs: Use the -f option to force overwrite.
[root@ip-172-31-12-165 ~]# mkfs.xfs /dev/xvdl
meta-data=/dev/xvdl          isize=512   agcount=4, agsize=6553600 blks
                           =         sectsz=512  attr=2, projid32bit=1
                           =         crc=1    finobt=1, sparse=0
data                =         bsize=4096   blocks=26214400, imaxpct=25
                           =         sunit=0   swidth=0 blks
naming              =version 2        bsize=4096   ascii-ci=0 ftsize=1
log                 =internal log    bsize=4096   blocks=12800, version=2
                           =         sectsz=512  sunit=0 blks, lazy-count=1
realtime            =none           bsize=4096   extsz=4096  blocks=0, rtextents=0
[root@ip-172-31-12-165 ~]# mkdir /kanna
```

i-009df66ec407ba285 (advanceEBS)

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Partition table entries are not in disk order.

```
Disk /dev/xvdः 2 GiB, 2147483648 bytes, 4194304 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/xvdः 4 GiB, 4294967296 bytes, 8388608 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/xvdः 500 GiB, 536870912000 bytes, 1048576000 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
```

[root@ip-172-31-12-165 ~]#

i-009df66ec407ba285 (advanceEBS)

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The screenshot shows the 'Volume settings' configuration page for an AWS EC2 volume. The 'Volume type' dropdown is set to 'Throughput Optimized HDD (st1)'. Other options listed include General Purpose SSD (gp2), General Purpose SSD (gp3), Provisioned IOPS SSD (io1), Provisioned IOPS SSD (io2), and Cold HDD (sc1). The 'Availability Zone' is set to 'ap-south-1'. A note at the bottom states 'Baseline: 40 MiB/s per TiB.' The page includes standard AWS navigation and search bars.

The screenshot shows the 'Volume settings' configuration page for a 'Cold HDD (sc1)'. The 'Volume type' dropdown is set to 'Cold HDD (sc1)'. The 'Size (GiB)' field is set to '500'. A note below it says 'Min: 125 GiB, Max: 16384 GiB. The value must be an integer.' The 'IOPS' section indicates 'Not applicable'. The 'Throughput (MiB/s)' field is set to '5140'. A note below it says 'Baseline: 12 MiB/s per TiB.' The 'Availability Zone' is set to 'ap-south-1'. The page includes standard AWS navigation and search bars.

The screenshot shows the 'Create volume' page in the AWS Management Console. Under 'Volume settings', the 'Volume type' dropdown is set to 'Cold HDD (sc1)'. Other options listed include General Purpose SSD (gp2), General Purpose SSD (gp3), Provisioned IOPS SSD (io1), Provisioned IOPS SSD (io2), Throughput Optimized HDD (st1), and Magnetic (standard). A note at the bottom states 'Baseline: 12 MiB/s per TiB.' The page also includes a feedback link and standard browser navigation controls.

The screenshot shows the EC2 Instance Connect terminal window. It displays system memory statistics: 8137608 total, 121932 free, 4257224 used, and 3758452 buff/cache. It also shows swap usage: 0 total, 0 free, 0 used, and 3630452 avail Mem. Below this, a top command output shows various processes and their resource usage. At the bottom, a command history shows the user deleting a file named 'hi.txt':

```
i-009df66ec407ba285 (advanceEBS)
PublicIPs: 65.0.131.117 PrivateIPs: 172.31.12.165
[root@ip-172-31-12-165 data]# rm hi.txt
rm: remove regular file 'hi.txt'? y
[root@ip-172-31-12-165 data]#
```

This screenshot shows a blank command line interface within the EC2 Instance Connect terminal window, indicating no active commands or outputs.

```
nZmnx M Ndx m xNm XM n,mmmbjzbvzjnkbjzkbkbzxbK,bxbm
-- INSERT --
i-009df66ec407ba285 (advanceEBS)
PublicIPs: 65.0.131.117 PrivateIPs: 172.31.12.165

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Volumes | EC2 Management Con x EC Instance Connect x Editing AWStraining2022/04-EB x Font Generator & Free Custom C x + Mumbai The Eshwar Kanna
aws Services Q sudo s
nZmnx M Ndx m xNm XM n,mmmbjzbvzjnkbjzkbkbzxbK,bxbm
-- INSERT --
i-009df66ec407ba285 (advanceEBS)
PublicIPs: 65.0.131.117 PrivateIPs: 172.31.12.165

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Type here to search PragmaEdge 12:54 ENG 03-12-2022

Volumes | EC2 Management Con x EC Instance Connect x Editing AWStraining2022/04-EB x Font Generator & Free Custom C x + Mumbai The Eshwar Kanna
aws Services Q sudo s
/dev/xvda1 4096 62914526 62910431 30G Linux filesystem
/dev/xvda128 2048 4095 2048 1M BIOS boot

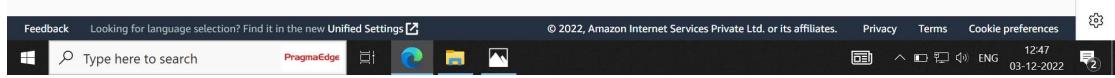
Partition table entries are not in disk order.

Disk /dev/xvdf: 2 GiB, 2147483648 bytes, 4194304 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/xvdd: 4 GiB, 4294967296 bytes, 8388608 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
[root@ip-172-31-12-165 ec2-user]# blockdev --getbsz /dev/xvda1
512
[root@ip-172-31-12-165 ec2-user]# mkdir /data
[root@ip-172-31-12-165 ec2-user]# touch hi.txt
[root@ip-172-31-12-165 ec2-user]# 

i-009df66ec407ba285 (advanceEBS)
PublicIPs: 65.0.131.117 PrivateIPs: 172.31.12.165

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```



Device Start End Sectors Size Type
 /dev/xvda1 4096 62914526 62910431 30G Linux filesystem
 /dev/xvda128 2048 4095 2048 1M BIOS boot

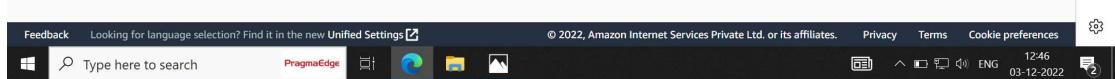
Partition table entries are not in disk order.

Disk /dev/xvdf: 2 GiB, 2147483648 bytes, 4194304 sectors
 Units: sectors of 1 * 512 = 512 bytes
 Sector size (logical/physical): 512 bytes / 512 bytes
 I/O size (minimum/optimal): 512 bytes / 512 bytes
 [root@ip-172-31-12-165 ec2-user]# blockdev --getbsz /dev/xvda1
 512
 [root@ip-172-31-12-165 ec2-user]#

i-009df66ec407ba285 (advanceEBS)
 PublicIPs: 65.0.131.117 PrivateIPs: 172.31.12.165

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Device Start End Sectors Size Type
 /dev/xvda 795M 0 795M 0% /run/user/1000
 /tmpfs 795M 0 795M 0% /run/user/0
 [root@ip-172-31-12-165 ec2-user]# fdisk -l
 Disk /dev/xvda: 30 GiB, 32212254720 bytes, 62914560 sectors
 Units: sectors of 1 * 512 = 512 bytes
 Sector size (logical/physical): 512 bytes / 512 bytes
 I/O size (minimum/optimal): 512 bytes / 512 bytes
 Disklabel type: gpt
 Disk identifier: DA90AB95-8C11-4BAE-9157-C48213FBAD0C

Device Start End Sectors Size Type
 /dev/xvda1 4096 62914526 62910431 30G Linux filesystem
 /dev/xvda128 2048 4095 2048 1M BIOS boot

Partition table entries are not in disk order.

Disk /dev/xvdf: 2 GiB, 2147483648 bytes, 4194304 sectors
 Units: sectors of 1 * 512 = 512 bytes
 Sector size (logical/physical): 512 bytes / 512 bytes
 I/O size (minimum/optimal): 512 bytes / 512 bytes

i-009df66ec407ba285 (advanceEBS)
 PublicIPs: 65.0.131.117 PrivateIPs: 172.31.12.165

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Screenshots showing the AWS CloudShell interface with multiple tabs open, displaying terminal output for disk partitioning and file system configuration.

Terminal 1 (Top Tab):

```

tmpfs      795M   0  795M  0% /run/user/1000
tmpfs      795M   0  795M  0% /run/user/0
[root@ip-172-31-12-165 ec2-user]# fdisk -l
Disk /dev/xvda: 30 GiB, 32212254720 bytes, 62914560 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: gpt
Disk identifier: DA90AB95-8C11-4BAE-9157-C48213FBAD0C

Device      Start    End  Sectors Size Type
/dev/xvdal   4096 62910431 30G Linux filesystem
/dev/xvda128  2048   4095   2048  1M BIOS boot

Partition table entries are not in disk order.

Disk /dev/xvdf: 2 GiB, 2147483648 bytes, 4194304 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

```

i-009df66ec407ba285 (advanceEBS)
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Terminal 2 (Second Tab):

```

[root@ip-172-31-12-165 ec2-user]# xfs_growfs /
meta-data=/dev/xvda1      isize=512   agcount=11, agsize=524159 blks
                     =       sectsz=512   attr=2, projid32bit=1
                     =       crc=1     finobt=1 spinodes=0
data      =      bs=4096   sunit=0   swidth=0 blks
naming   =version 2      bsize=4096  ascii-ci=0 ftype=1
log       =internal        bsize=4096  blocks=2560, version=2
                     =      sectsz=512   sunit=0 blks, lazy_count=1
realtime =none            extsz=4096  blocks=0, rtextents=0
data blocks changed from 5242363 to 7863803
[root@ip-172-31-12-165 ec2-user]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        3.9G   0    3.9G  0% /dev
tmpfs          3.9G   0    3.9G  0% /dev/shm
tmpfs          3.9G  480K  3.9G  1% /run
tmpfs          3.9G   0    3.9G  0% /sys/fs/cgroup
/dev/xvda1      30G  1.6G  29G  6% /
tmpfs          795M   0   795M  0% /run/user/1000
tmpfs          795M   0   795M  0% /run/user/0

```

i-009df66ec407ba285 (advanceEBS)
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Screenshots showing the AWS Cloud9 IDE interface and terminal output for two separate EC2 instances. Both instances show identical configurations and outputs for disk management commands.

Terminal Output (Instance 1):

```
[root@ip-172-31-12-165 ec2-user]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        3.9G   0    3.9G  0% /dev
tmpfs          3.9G   0    3.9G  0% /dev/shm
tmpfs          3.9G  480K  3.9G  1% /run
tmpfs          3.9G   0    3.9G  0% /sys/fs/cgroup
/dev/xvda1     20G  1.6G  19G  8% /
tmpfs         795M   0   795M  0% /run/user/1000
tmpfs         795M   0   795M  0% /run/user/0
[root@ip-172-31-12-165 ec2-user]# xfs_growfs /
meta-data=/dev/xvda1      isize=512  agcount=11, agsize=524159 blks
                          = sectsz=512  attr=2, projid2bit=1
                          =          crc=1   finobt=1 spinodes=0
data          bsize=4096   blocks=5242363, imaxpct=25
              =          sunit=0   swidth=0 blks
naming        =version 2   bsize=4096  ascii-ci=0 fttype=1
log           =internal    bsize=4096  blocks=2560, version=2
              =          sunit=0   blks, lazy-count=1
realtime      =none        extsz=4096
data blocks changed from 5242363 to 7863803
[root@ip-172-31-12-165 ec2-user]# df -h
```

i-009df66ec407ba285 (advanceEBS)
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Terminal Output (Instance 2):

```
[root@ip-172-31-12-165 ec2-user]# growpart /dev/xvda 1
CHANGED: partition=1 start=4096 old: size=41938911 end=41943007 new: size=62910431 end=62914527
[root@ip-172-31-12-165 ec2-user]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        3.9G   0    3.9G  0% /dev
tmpfs          3.9G   0    3.9G  0% /dev/shm
tmpfs          3.9G  480K  3.9G  1% /run
tmpfs          3.9G   0    3.9G  0% /sys/fs/cgroup
/dev/xvda1     20G  1.6G  19G  8% /
tmpfs         795M   0   795M  0% /run/user/1000
tmpfs         795M   0   795M  0% /run/user/0
[root@ip-172-31-12-165 ec2-user]# xfs_growfs /
meta-data=/dev/xvda1      isize=512  agcount=11, agsize=524159 blks
                          = sectsz=512  attr=2, projid2bit=1
                          =          crc=1   finobt=1 spinodes=0
data          bsize=4096   blocks=5242363, imaxpct=25
              =          sunit=0   swidth=0 blks
naming        =version 2   bsize=4096  ascii-ci=0 fttype=1
log           =internal    bsize=4096  blocks=2560, version=2
              =          sunit=0   blks, lazy-count=1
realtime      =none        extsz=4096
data blocks changed from 5242363 to 7863803
[root@ip-172-31-12-165 ec2-user]# df -h
```

i-009df66ec407ba285 (advanceEBS)
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```
- 'on'      : fail if sanity checks indicate no support

Example:
- growpart /dev/sda 1
  Resize partition 1 on /dev/sda
must supply partition-number
[root@ip-172-31-12-165 ec2-user]# growpart /dev/xvda 1
CHANGED: partition=1 start=4096 old: size=41938911 end=41943007 new: size=62910431 end=62914527
[root@ip-172-31-12-165 ec2-user]# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/xvda1     20G   19G    0  8% /
tmpfs          3.9G   0  3.9G  0% /dev/shm
tmpfs          3.9G  480K  3.9G  1% /run
tmpfs          3.9G   0  3.9G  0% /sys/fs/cgroup
/dev/xvda1     20G  1.6G  19G  8% /
tmpfs          795M   0  795M  0% /run/user/1000
tmpfs          795M   0  795M  0% /run/user/0
[root@ip-172-31-12-165 ec2-user]# xfs_growfs  /
meta-data=/dev/xvda1  isize=512  agcount=11, agsize=524159 blks
                  =       sectsz=512  attr=2, projid32bit=1
                  =       crc=1    finobt=1 spinodes=0
```

i-009df66ec407ba285 (advanceEBS)

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```
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
[root@ip-172-31-12-165 ec2-user]# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/xvda1     20G   19G    0  8% /
tmpfs          3.9G   0  3.9G  0% /dev/shm
tmpfs          3.9G  480K  3.9G  1% /run
tmpfs          3.9G   0  3.9G  0% /sys/fs/cgroup
/dev/xvda1     20G  1.6G  19G  8% /
tmpfs          795M   0  795M  0% /run/user/1000
tmpfs          795M   0  795M  0% /run/user/0
[root@ip-172-31-12-165 ec2-user]# df -n
Filesystem      Size  Used Avail Use% Mounted on
/dev/xvda1     20G   19G    0  8% /
tmpfs          3.9G   0  3.9G  0% /dev/shm
tmpfs          3.9G  480K  3.9G  1% /run
tmpfs          3.9G   0  3.9G  0% /sys/fs/cgroup
/dev/xvda1     20G  1.6G  19G  8% /
tmpfs          795M   0  795M  0% /run/user/1000
tmpfs          795M   0  795M  0% /run/user/0
[root@ip-172-31-12-165 ec2-user]#
```

i-009df66ec407ba285 (advanceEBS)

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Screenshot of the AWS Management Console showing the EC2 Volumes page. A modal window titled "Requested volume modification for volume vol-0f876688ea84e89a6." displays the message "The volume is being modified." Below the modal, a table lists three volumes:

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot
-	vol-0f876688ea84e89a6	gp2	30 GiB	100	-	snap-0f0f2d1
newhd1	vol-0da88bd07e57ddda7a	gp2	2 GiB	100	-	-
hd2	vol-06a048780a3c8ab76	gp2	4 GiB	100	-	-

The "Actions" dropdown menu is open, showing options like "Create snapshot," "Delete volume," and "Modify volume." The "Modify volume" option is highlighted.

Below the table, a "Volume ID: vol-0f876688ea84e89a6" section is visible. The URL in the browser is https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#Volumes:.

Screenshot of the "Modify volume" dialog box. The "Volume details" section shows the following settings:

- Volume ID: vol-0f876688ea84e89a6
- Volume type: General Purpose SSD (gp2)
- Size (GiB): 30
- IOPS: 100/3000

At the bottom right of the dialog are "Cancel" and "Modify" buttons. The URL in the browser is https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#ModifyVolume?volumeId=vol-0f8... .

You can now create Amazon Data Lifecycle Manager policies to automate snapshot management directly from this screen. Select the volumes to back up, and then choose **Actions**, **Create snapshot lifecycle policy**. For more information, see the [Knowledge Center article](#).

Volumes (1/3)

Name	Volume ID	Type	Size
-	vol-0f876688ea84e89a6	gp2	20 GiB
newhd1	vol-0da88bd07e57dd7a	gp2	2 GiB
hd2	vol-06a048780a3c8ab76	gp2	4 GiB

Volume ID: vol-0f876688ea84e89a6

Details **Status checks** **Monitoring** **Tags**

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12:34 03-12-2022

```
Disk /dev/xvdf: 2 GiB, 2147483648 bytes, 4194304 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
[root@ip-172-31-12-165 ec2-user]# df -h
Filesystem      Size  Used Avail Use% Mounted on
/devtmpfs        3.9G   0    3.9G  0% /dev
tmpfs           3.9G   0    3.9G  0% /dev/shm
tmpfs           3.9G  480K  3.9G  1% /run
tmpfs           3.9G   0    3.9G  0% /sys/fs/cgroup
/dev/xvda1       20G   1.6G   19G  8% /
tmpfs          795M   0    795M  0% /run/user/1000
tmpfs          795M   0    795M  0% /run/user/0
[root@ip-172-31-12-165 ec2-user]#
```

i-009df66ec407ba285 (advanceEBS)

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12:31 03-12-2022

Disklabel type: gpt
Disk identifier: DA90AB95-8C11-4BAE-9157-C48213FBAD0C

Device	Start	End	Sectors	Size	Type
/dev/xvda1	4096	41943006	41938911	20G	Linux filesystem
/dev/xvda128	2048	4095	2048	1M	BIOS boot

Partition table entries are not in disk order.

```
Disk /dev/xvdf: 2 GiB, 2147483648 bytes, 4194304 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/xvdg: 4 GiB, 4294967296 bytes, 8388608 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
```

[root@ip-172-31-12-165 ec2-user]#

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Modify volume | EC2 Management Editing AWSStringing2022/04- EBS Mumbai The Eshwar Kanna ...

<https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#ModifyVolume?volumeId=vol-06...>

aws Services [Alt+S]

Modify the type, size, and performance of an EBS volume.

Volume details

Volume ID: vol-06a048780a3c8ab76 (hd2)

Volume type: [Info](#) General Purpose SSD (gp2)

Size (GiB): [Info](#) 4

Min: 1 GiB, Max: 16384 GiB. The value must be an integer.

IOPS: [Info](#) 100/3000

Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS.

[Cancel](#) [Modify](#)

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Screenshot of the AWS Management Console showing the successful attachment of an EBS volume to an EC2 instance.

EC2 Dashboard

Instances

Name	Volume ID	Type	Size	IOPS
-	vol-0f876688ea84e89a6	gp2	20 GiB	100
newhd1	vol-0da88bd07e57dda7a	gp2	2 GiB	100
hd2	vol-06a048780a3c8ab76	gp2	3 GiB	100

Actions

- Modify volume
- Create snapshot
- Create snapshot lifecycle policy
- Delete volume
- Attach volume
- Detach volume
- Force detach volume
- Manage auto-enabled I/O
- Manage tags

Volume ID: vol-06a048780a3c8ab76 (hd2)

Disklabel type: gpt
Disk identifier: DA90AB95-8C11-4BAE-9157-C48213FBAD0C

Device	Start	End	Sectors	Size	Type
/dev/xvda1	4096	41943006	41938911	20G	Linux filesystem
/dev/xvda128	2048	4095	2048	1M	BIOS boot

Partition table entries are not in disk order.

Disk /dev/xvdf: 2 GiB, 2147483648 bytes, 4194304 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/xvdg: 3 GiB, 3221225472 bytes, 6291456 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

[root@ip-172-31-12-165 ec2-user]#

i-009df66ec407ba285 (advanceEBS)
Public IPs: 65.0.131.117 Private IPs: 172.31.12.165

The screenshot shows two consecutive steps in the AWS EC2 console:

Step 1: Attach volume

The user is attaching the volume `vol-06a048780a3c8ab76 (hd2)` to an instance. In the "Availability Zone" dropdown, the option `i-009df66ec407ba285 (advancedEBS) (running)` is selected. The "Device name" field is empty.

Step 2: Successful volume creation

A green success message states: "Successfully created volume `vol-06a048780a3c8ab76`. You can now create Amazon Data Lifecycle Manager policies to automate snapshot management directly from this screen. Select the volumes to back up, and then choose Actions, Create snapshot lifecycle policy. For more information, see the Knowledge Center article." The volume table lists four volumes, including the newly created `hd2`.

Name	Volume ID	Type	Size	IOPS
-	<code>vol-0f876688ea84e89a6</code>	gp2	20 GiB	100
<code>newhd1</code>	<code>vol-0da88bd07e57dd7a</code>	gp2	2 GiB	100
<code>hd2</code>	<code>vol-06a048780a3c8ab76</code>	gp2	3 GiB	100

The screenshot shows the 'Create volume' step in the AWS EC2 wizard. The 'Volume settings' section is visible, containing the following fields:

- Volume type:** General Purpose SSD (gp2)
- Size (GiB):** 3
- IOPS:** 100 / 3000
- Throughput (MiB/s):** Not applicable

Below these settings, there are sections for 'Tags - optional' and 'Encryption'. The 'Tags - optional' section allows adding key-value pairs, and the 'Encryption' section provides an option to enable encryption for the volume.

```

Partitions table entries are not in disk order.
[root@ip-172-31-12-165 ec2-user]# fdisk -l
Disk /dev/xvda: 20 GiB, 21474836480 bytes, 41943040 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: gpt
Disk identifier: DA90AB95-8C11-4BAE-9157-C48213FBAD0C

Device      Start     End   Sectors Size Type
/dev/xvda1    4096 41943006 41938911 20G Linux filesystem
/dev/xvda12   2048    4095     2048  1M BIOS boot

Partition table entries are not in disk order.

Disk /dev/xvdf: 2 GiB, 2147483648 bytes, 4194304 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
[root@ip-172-31-12-165 ec2-user]# [REDACTED]

i-009df66ec407ba285 (advanceEBS)
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```

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Name	Volume ID	Type	Size
-	vol-0f876688ea84e89a6	gp2	20 GiB
<input checked="" type="checkbox"/> newhd1	vol-0da88bd07e57dda7a	gp2	2 GiB

You can now create Amazon Data Lifecycle Manager policies to automate snapshot management directly from this screen. Select the volumes to back up, and then choose **Actions**, **Create snapshot lifecycle policy**. For more information, see the [Knowledge Center article](#).

Actions

- Modify volume
- Create snapshot
- Create snapshot lifecycle policy
- Delete volume
- Attach volume
- Detach volume
- Force detach volume
- Manage auto-enabled I/O
- Manage tags

Volume ID: vol-0da88bd07e57dda7a (newhd1)

Details | Status checks | Monitoring | Tags

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The screenshot shows a browser window with multiple tabs open. The active tab is titled "Modify volume | EC2 Management" and displays the AWS EBS Modify Volume interface. A modal dialog box is centered over the page, prompting the user to confirm the modification of volume `vol-0da88bd07e57dda7a`. The dialog contains the following text:

If you are increasing the size of the volume, you must extend the file system to the new size of the volume. You can only do this when the volume enters the optimizing state. For more information see extending the file system for [Linux](#) and [Windows](#).

The modification might take a few minutes to complete.

You are charged for the new volume configuration after volume modification starts. For pricing information, see [Amazon EBS Pricing](#).

Are you sure that you want to modify vol-0da88bd07e57dda7a?

At the bottom right of the dialog are two buttons: "Cancel" and "Modify".

Below the dialog, the main page shows the "Volume details" section for the volume `vol-0da88bd07e57dda7a`, which is currently set to `newhd1`. The "Size (GiB)" field is set to `2`. Other visible fields include "Volume type" (General Purpose SSD (gp2)), "IOPS" (100/3000), and "Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS".

At the bottom of the browser window, the status bar shows the date and time as "03-12-2022 12:24".

The screenshot shows the AWS Management Console with the EC2 service selected. A success message at the top states "Successfully created volume vol-0da88bd07e57dda7a." Below it, a note says, "You can now create Amazon Data Lifecycle Manager policies to automate snapshot management directly from this screen. Select the volumes to back up, and then choose Actions, Create snapshot lifecycle policy. For more information, see the Knowledge Center article." The main area displays a table titled "Volumes (1/2)" with one row. The row details a volume named "newhd1" with Volume ID "vol-0da88bd07e57dda7a", Type "gp2", Size "1 GiB", IOPS "100", Throughput "-", and Snapshot "snap-0f0f2d1". A "Create volume" button is visible at the top right of the table.

Volumes (1/2)

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot
newhd1	vol-0da88bd07e57dda7a	gp2	1 GiB	100	-	snap-0f0f2d1

Volume ID: vol-0da88bd07e57dda7a (newhd1)

Create volume

Create volume | EC2 Management

Size (GiB) Min: 1 GiB, Max: 16384 GiB. The value must be an integer.

IOPS / 3000 Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS.

Throughput (MiB/s) Not applicable

Availability Zone ap-south-1b
ap-south-1a
ap-south-1b
ap-south-1c

Use Amazon EBS encryption as an encryption solution for your EBS resources associated with your EC2 instances.
 Encrypt this volume

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