

Cloud Computing

Creating an instance

Bootstrap script

- Same as creating instance. In advanced details setting in the end add the user data

```
#!/bin/bash
yum -y install httpd
echo "this is bootstrap $(uname -n)" > /var/www/html/index.html
systemctl start httpd
systemctl enable httpd
```

- Then lunch the instances

Security Groups

- Select Network & security → security group → click create security group
- Enter the group name and description
- Add rule in inbound rules:- SSH, SMTP, HTTP, HTTPS
- Click create security group
- To add the security group to instance
- Select the instance → click action → security → select change security groups
- Select the security groups, add and save

Inbound

Definition: Traffic that is coming into your AWS resource (e.g., an EC2 instance, a load balancer, etc.) from external sources.

Examples:

HTTP/HTTPS requests from users accessing a website hosted on an EC2 instance.

SSH connections to an EC2 instance.

Outbound

Definition: Traffic that is sent out from your AWS resource to an external destination.

Examples:

A web server making API requests to an external service.

A database server sending logs to an external monitoring service.

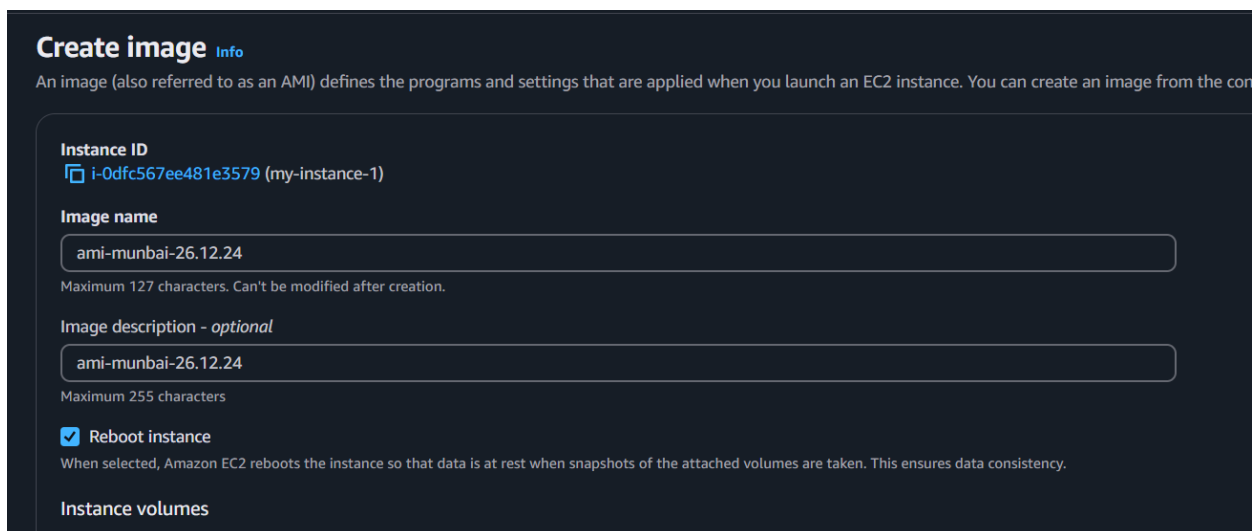
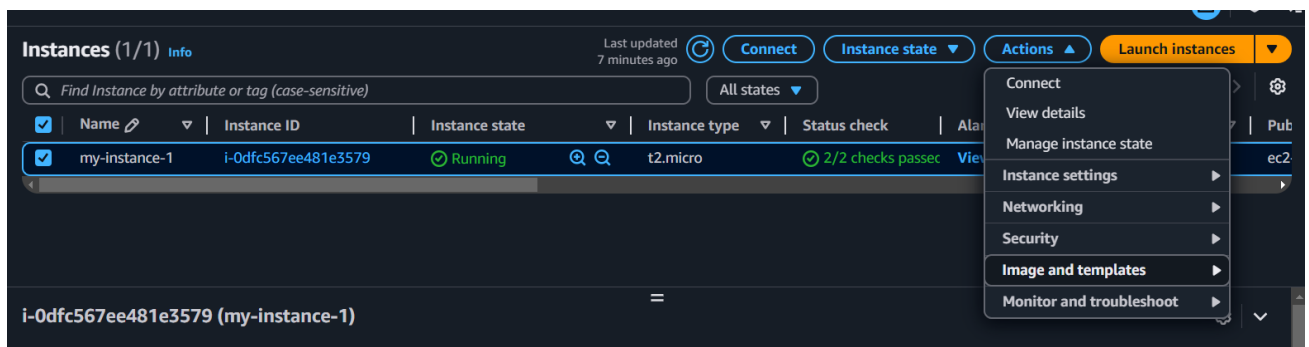
Elastic IP

- Select Network & security → Elastic IPs → click allocate elastic ip address
- Click allocate
- Click associate elastic IP address → select the instance and enter the private and click → click associate
- After user disassociate and release Elastic IP

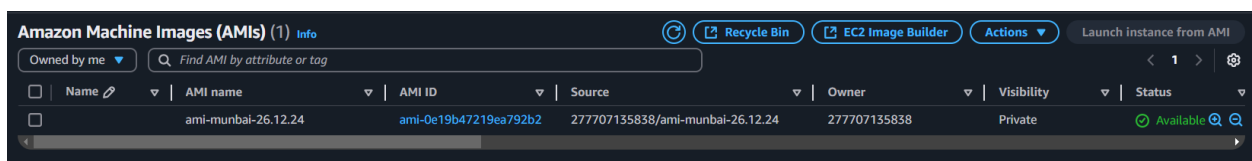
AMI

Step-1: Create a instance with user data script and install the package and some users to check in other instance

Step-2: Create a AMI



- Wait until AMI status available



Try creating in different availability zone and check all the package and users created in previous my-instance-1 AMI

Instances (2) Info

Last updated less than a minute ago

Find Instance by attribute or tag (case-sensitive)

All states

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	
<input type="checkbox"/>	my-instance-2	i-08bc28988f108606d	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1a	ec2-15-207-86-51.ap-s...	1
<input type="checkbox"/>	my-instance-1	i-0dfc567ee481e3579	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1b	ec2-13-201-80-185.ap-...	1

Copy the AMI to other region and Try creating in other region and check package and users

Amazon Machine Images (AMIs) (1/1) Info

Owned by me

Find AMI by attribute or tag

	Name	AMI name	AMI ID	Source
<input checked="" type="checkbox"/>		ami-mumbai-26.12.24	ami-0e19b47219ea792b2	277707135838/ami-mumbai-26.12.24

AMI ID: ami-0e19b47219ea792b2

Details Permissions Storage Tags

AMI ID	ami-0e19b47219ea792b2	Image type	machine	Platform details	Linux/UNIX	Root device type	EBS
AMI name	ami-mumbai-26.12.24	Owner account ID	277707135838	Architecture	x86_64	Usage operation	RunInstances
Root device name	/dev/xvda	Status	Available	Source	277707135838/ami-mumbai-26.12.24	Virtualization type	hvm

Copy AMI

- Edit AMI permissions
- Request Spot Instances
- Manage tags
- Deregister AMI
- Manage AMI deregistration protection
- Change description
- Configure fast launch
- Manage AMI Deprecation
- Register instance store-backed AMI
- Disable AMI

Copy AMI Info

Create a copy of an Amazon Machine Image in a Region.

Copy Amazon Machine Image (AMI)

Original AMI ID

ami-0e19b47219ea792b2

AMI copy name

ami-mumbai-26.12.24

AMI copy description

[Copied ami-0e19b47219ea792b2 from ap-south-1] ami-mumbai-26.12.24

Destination Region

A copy of the original AMI will be created in the destination Region.

Asia Pacific (Singapore)

☐ Copy tags

Includes your user-defined AMI tags when copying the AMI.

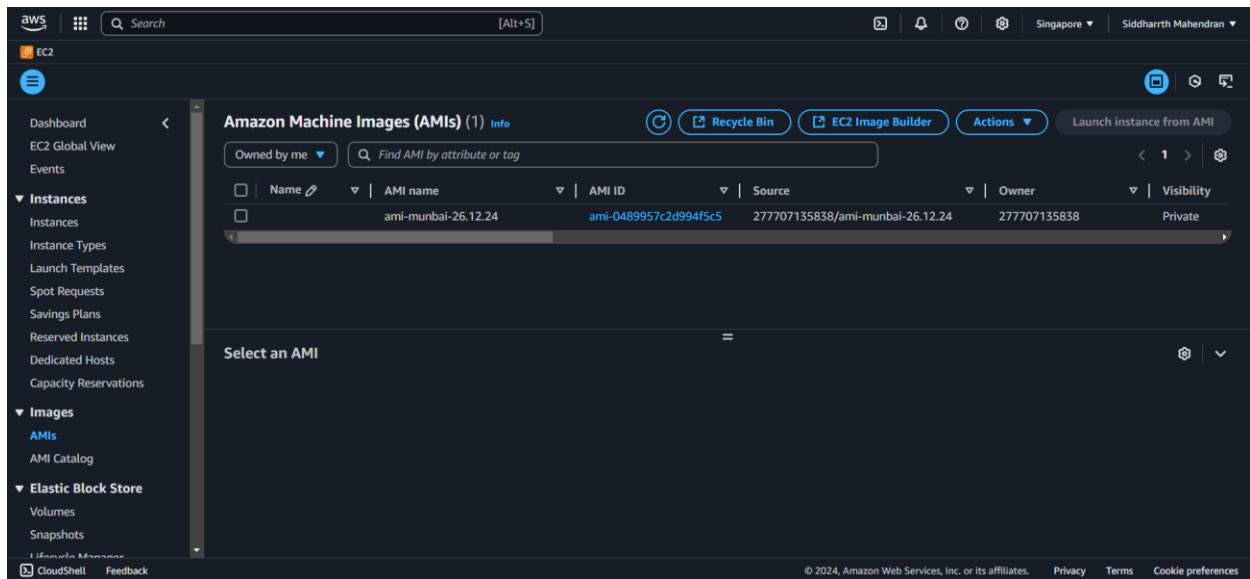
☐ Encrypt EBS snapshots of AMI copy

Encrypts all snapshots in the AMI copy with the same key.

Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

- Change the region and check AMI is copied

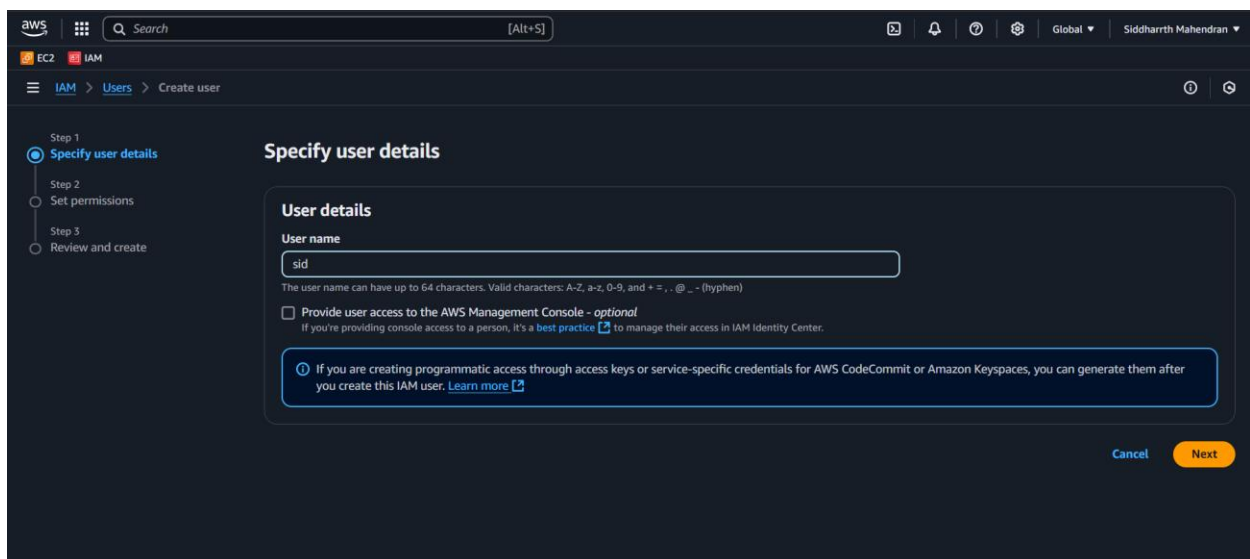


Once Completed deregister the AMI from all the region

IAM

Create a IAM user

IAM → users → create user →



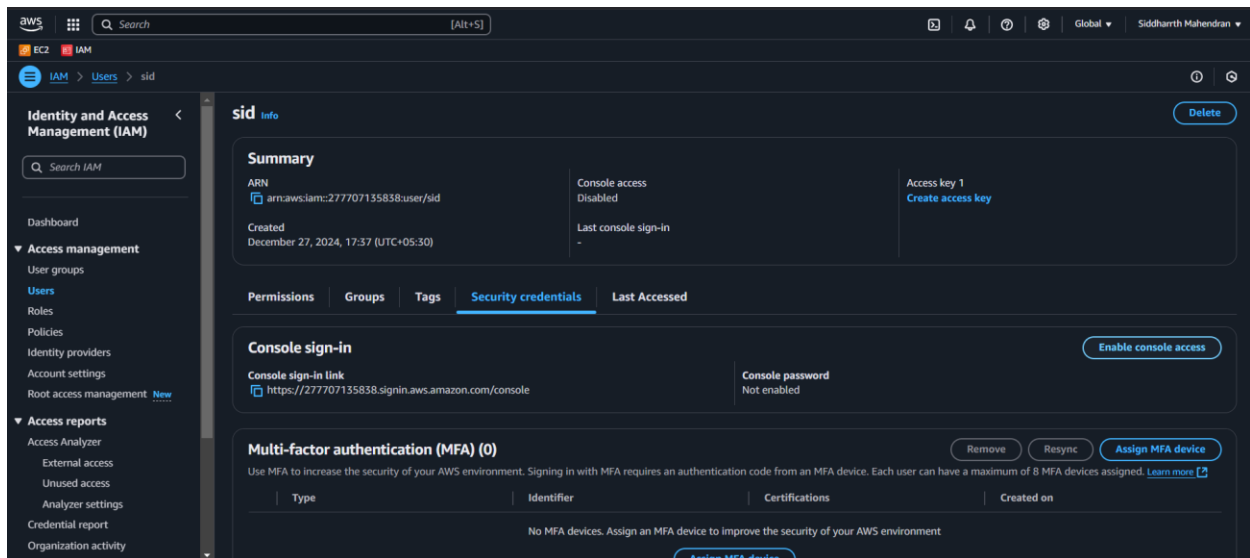
EC2IAM

Search

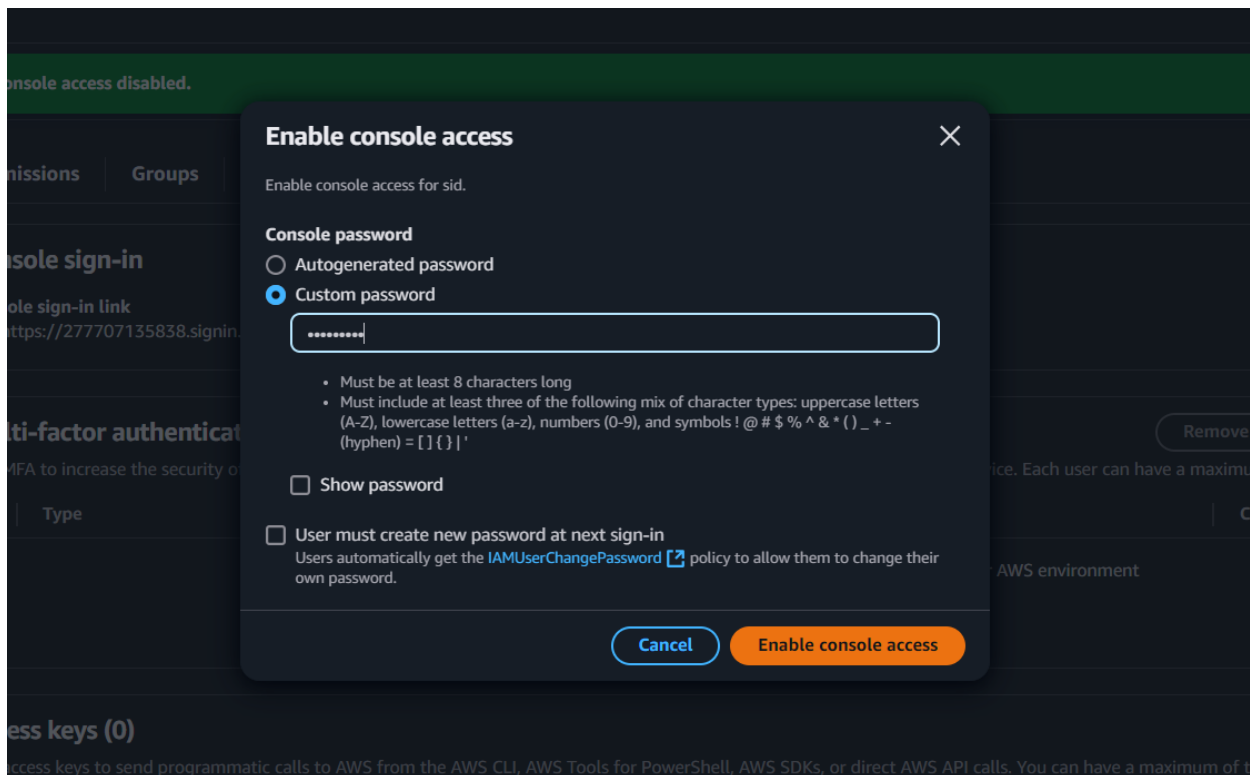
[Alt+S]

IAMUsersCreate user

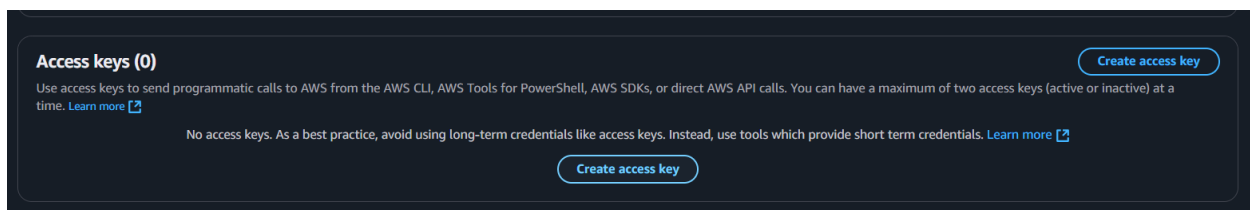
12345678910111213141516171819202122232425262728293031323334353637383940414243444546474849505152535455565758596061626364656667686970717273747576777879808182838485868788899091929394959697989910010110210310410510610710810911011111211311411511611711811912012112212312412512612712812913013113213313413513613713813914014114214314414514614714814915015115215315415515615715815916016116216316416516616716816917017117217317417517617717817918018118218318418518618718818919019119219319419519619719819920020120220320420520620720820921021121221321421521621721821922022122222322422522622722822923023123223323423523623723823924024124224324424524624724824925025125225325425525625725825926026126226326426526626726826927027127227327427527627727827928028128228328428528628728828929029129229329429529629729829930030130230330430530630730830931031131231331431531631731831932032132232332432532632732832933033133233333433533633733833934034134234334434534634734834935035135235335435535635735835936036136236336436536636736836937037137237337437537637737837938038138238338438538638738838939039139239339439539639739839940040140240340440540640740840941041141241341441541641741841942042142242342442542642742842943043143243343443543643743843944044144244344444544644744844945045145245345445545645745845946046146246346446546646746846947047147247347447547647747847948048148248348448548648748848949049149249349449549649749849950050150250350450550650750850951051151251351451551651751851952052152252352452552652752852953053153253353453553653753853954054154254354454554654754854955055155255355455555655755855956056156256356456556656756856957057157257357457557657757857958058158258358458558658758858959059159259359459559659759859960060160260360460560660760860961061161261361461561661761861962062162262362462562662762862963063163263363463563663763863964064164264364464564664764864965065165265365465565665765865966066166266366466566666766866967067167267367467567667767867968068168268368468568668768868969069169269369469569669769869970070170270370470570670770870971071171271371471571671771871972072172272372472572672772872973073173273373473573673773873974074174274374474574674774874975075175275375475575675775875976076176276376476576676776876977077177277377477577677777877978078178278378478578678778878979079179279379479579679779879980080180280380480580680780880981081181281381481581681781881982082182282382482582682782882983083183283383483583683783883984084184284384484584684784884985085185285385485585685785885986086186286386486586686786886987087187287387487587687787887988088188288388488588688788888989089189289389489589689789889990090190290390490590690790890991091191291391491591691791891992092192292392492592692792892993093193293393493593693793893994094194294394494594694794894995095195295395495595695795895996096196296396496596696796896997097197297397497597697797897998098198298398498598698798898999099199299399499599699799899910001001100210031004100510061007100810091010101110121013101410151016101710181019102010211022102310241025102610271028102910301031103210331034103510361037103810391040104110421043104410451046104710481049105010511052105310541055105610571058105910601061106210631064106510661067106810691070107110721073107410751076107710781079108010811082108310841085108610871088108910901091109210931094109510961097109810991100110111021103110411051106110711081109111011111112111311141115111611171118111911201121112211231124112511261127112811291130113111321133113411351136113711381139114011411142114311441145114611471148114911501151115211531154115511561157115811591160116111621163116411651166116711681169117011711172117311741175117611771178117911801181118211831184118511861187118811891190119111921193119411951196119711981199120012011202120312041205120612071208120912101211121212131214121512161217121812191220122112221223122412251226122712281229123012311232123312341235123612371238123912401241124212431244124512461247124812491250125112521253125412551256125712581259126012611262126312641265126612671268126912701271127212731274127512761277127812791280128112821283128412851286128712881289129012911292129312941295129612971298129913001301130213031304130513061307130813091310131113121313131413151316131713181319132013211322132313241325132613271328132913301331133213331334133513361337133813391340134113421343134413451346134713481349135013511352135313541355135613571358135913601361136213631364136513661367136813691370137113721373137413751376137713781379138013811382138313841385138613871388138913901391139213931394139513961397139813991400140114021403140414051406140714081409141014111412141314141415141614171418141914201421142214231424142514261427142814291430143114321433143414351436143714381439144014411442144314441445144614471448144914501451145214531454145514561457145814591460146114621463146414651466146714681469147014711472147314741475147614771478147914801481148214831484148514861487148814891490149114921493149414951496149714981499150015011502150315041505150615071508150915101511151215131514151515161517151815191520152115221523152415251526152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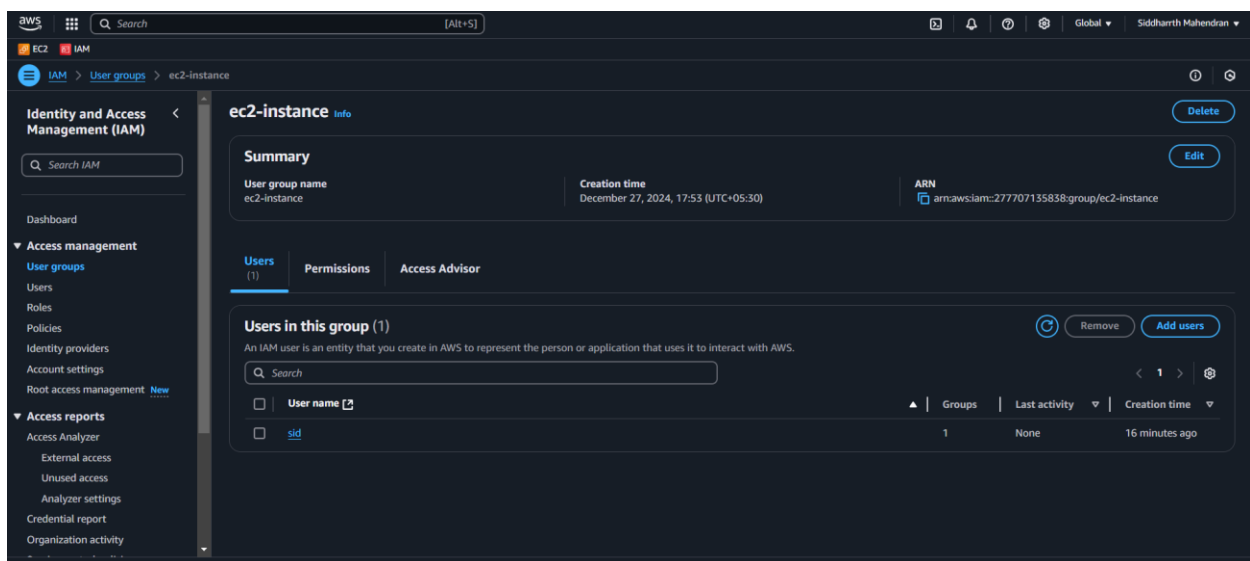
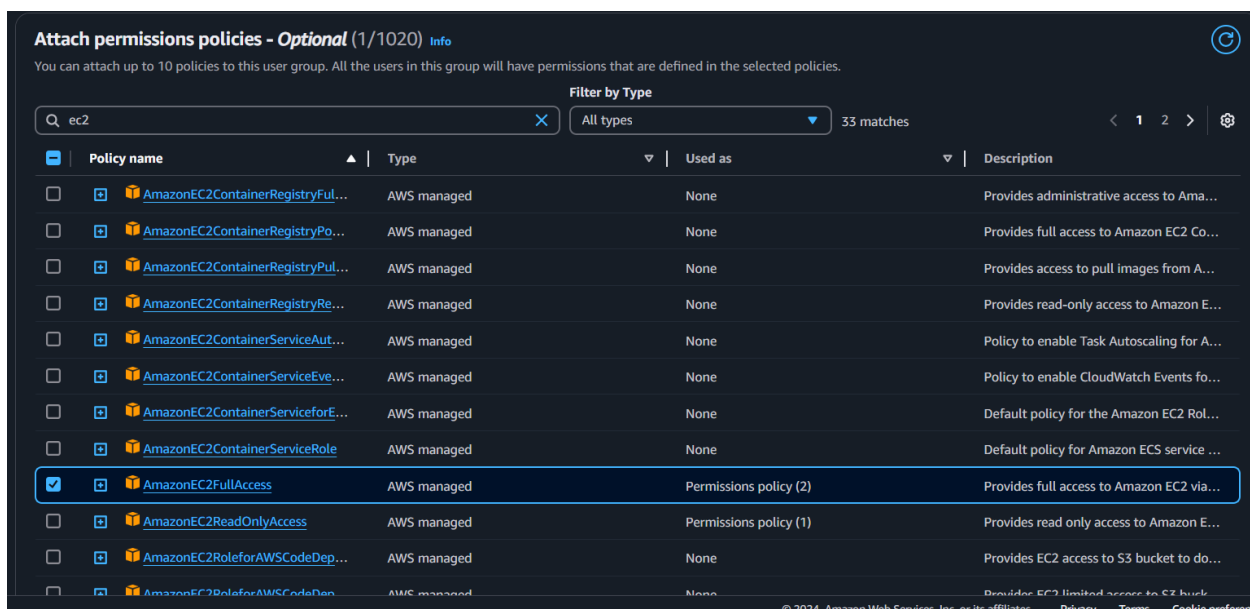
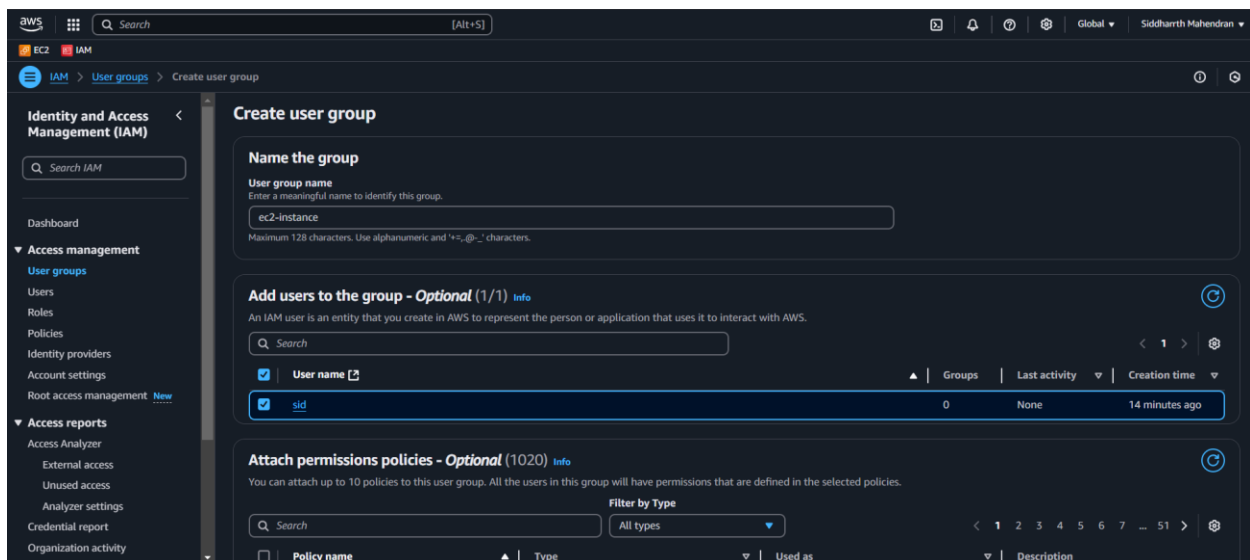
Create a console password



Create access key



Create a user group



Creating a role for the IAM

aws

Search

[Alt+S]

EC2

IAM

IAM

Users

sid

Create access key

Step 1

Access key best practices & alternatives

Step 2 - optional

Set description tag

Step 3

Retrieve access keys

Access key best practices & alternatives Info

Avoid using long-term credentials like access keys to improve your security. Consider the following use cases and alternatives.

Use case

☒ Command Line Interface (CLI)
You plan to use this access key to enable the AWS CLI to access your AWS account.

☐ Local code
You plan to use this access key to enable application code in a local development environment to access your AWS account.

☐ Application running on an AWS compute service
You plan to use this access key to enable application code running on an AWS compute service like Amazon EC2, Amazon ECS, or AWS Lambda to access your AWS account.

☐ Third-party service
You plan to use this access key to enable access for a third-party application or service that monitors or manages your AWS resources.

☐ Application running outside AWS
You plan to use this access key to authenticate workloads running in your data center or other infrastructure outside of AWS that needs to access your AWS resources.

☐ Other
Your use case is not listed here.

EC2

IAM

IAM

Roles

Create role

Step 1

Select trusted entity

Step 2

Add permissions

Step 3

Name, review, and create

Add permissions Info

Choose one or more policies to attach to your new role.

Filter by Type

ec2

All types

33 matches

	Policy name	Type	Description
<input type="checkbox"/>	AmazonEC2ContainerRegistryFullAccess	AWS managed	Provides administrative access to Ama...
<input type="checkbox"/>	AmazonEC2ContainerRegistryPowerUser	AWS managed	Provides full access to Amazon EC2 Co...
<input type="checkbox"/>	AmazonEC2ContainerRegistryPullOnly	AWS managed	Provides access to pull images from A...
<input type="checkbox"/>	AmazonEC2ContainerRegistryReadOnly	AWS managed	Provides read-only access to Amazon E...
<input type="checkbox"/>	AmazonEC2ContainerServiceAutoscaleRole	AWS managed	Policy to enable Task Autoscaling for A...
<input type="checkbox"/>	AmazonEC2ContainerServiceEventsRole	AWS managed	Policy to enable CloudWatch Events fo...
<input type="checkbox"/>	AmazonEC2ContainerServiceforEC2Role	AWS managed	Default policy for the Amazon EC2 Rol...
<input type="checkbox"/>	AmazonEC2ContainerServiceRole	AWS managed	Default policy for Amazon ECS service ...
<input checked="" type="checkbox"/>	AmazonEC2FullAccess	AWS managed	Provides full access to Amazon EC2 via...
<input checked="" type="checkbox"/>	AmazonEC2ReadOnlyAccess	AWS managed	Provides read only access to Amazon E...

aws

Search

[Alt+S]

EC2

IAM

IAM

Roles

Create role

Step 1

Select trusted entity

Step 2

Add permissions

Step 3

Name, review, and create

Name, review, and create

Role details

Role name

Enter a meaningful name to identify this role.

ec2-instance-roles

Maximum 64 characters. Use alphanumeric and "+", "@", "-" characters.

Description

Add a short explanation for this role.

ec2-instance-roles
Allows EC2 instances to call AWS services on your behalf.

Maximum 1000 characters. Use letters (A-Z and a-z), numbers (0-9), tabs, new lines, or any of the following characters: "+", "@", "/", ":", "=", "\$", "%", "&"; "-"

Step 1: Select trusted entities

Edit

Trust policy

```
1- {
2-   "Version": "2012-10-17",
3-   "Statement": [
4-     {
5-       "Effect": "Allow",
6-       "Action": [
7-         "sts:AssumeRole"
8-       ],
9-       "Principal": {
```


Roles (3) [Info](#)

An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.

<input type="checkbox"/>	Role name	Trusted entities	Last activity
<input type="checkbox"/>	AWSServiceRoleForSupport	AWS Service: support (Service-Linker)	-
<input type="checkbox"/>	AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service)	-
<input type="checkbox"/>	ec2-instance-roles	AWS Service: ec2	-

Roles Anywhere [Info](#) [Manage](#)

Authenticate your non AWS workloads and securely provide access to AWS services.

Access AWS from your non AWS workloads

Operate your non AWS workloads using the same authentication and authorization strategy that you use within AWS.

X.509 Standard

Use your own existing PKI infrastructure or use [AWS Certificate Manager Private Certificate Authority](#) to authenticate identities.

Temporary credentials

Use temporary credentials with ease and benefit from the enhanced security they provide.

Add IAM to ec2 instance

Instances (1/1) [Info](#)

Find Instance by attribute or tag (case-sensitive)

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
<input checked="" type="checkbox"/>	my-instance-1	i-0d70e485dd5e6d21c	Running	t3.micro	Initializing	View alarms +	ap-south-1c

i-0d70e485dd5e6d21c (my-instance-1)

[Details](#) [Status and alarms](#) [Monitoring](#) [Security](#) [Networking](#) [Storage](#) [Tags](#)

Instance summary [Info](#)

Instance ID i-0d70e485dd5e6d21c	Public IPv4 address 3.110.91.255 open address	Private IPv4 addresses 172.31.29.219
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-3-110-91-255.ap-south-1.compute.amazonaws.com open address
Hostname type	Private IP DNS name (IPv4 only)	

Modify IAM role [Info](#)

Attach an IAM role to your instance.

Instance ID
i-0d70e485dd5e6d21c (my-instance-1)

IAM role
Select an IAM role to attach to your instance or create a new role if you haven't created any. The role you select replaces any roles that are currently attached to your instance.

[Choose IAM role](#)

[Create new IAM role](#)

No IAM Role
Choose this option to detach an IAM role

ec2-instance-roles
arn:aws:iam::277707135838:instance-profile/ec2-instance-roles

[Cancel](#) [Update IAM role](#)

AWS cli install windows

<https://docs.aws.amazon.com/cli/latest/userguide/getting-started-install.html>

check a instance

```
PS C:\Users\Asus> aws configure
AWS Access Key ID [*****RQXR]: AKIAUBKFCTNPOKIM437B
AWS Secret Access Key [*****Sorm]: 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
Default region name [ap-south-1]: ap-south-1
Default output format [None]:
PS C:\Users\Asus> |
```

```
Default output format [None]:
PS C:\Users\Asus> aws ec2 describe-instances
{
  "Reservations": [
    {
      "ReservationId": "r-0e24b311fa6711633",
      "OwnerId": "277707135838",
      "Groups": [],
      "Instances": [
        {
          "Architecture": "x86_64",
          "BlockDeviceMappings": [
            {
              "DeviceName": "/dev/xvda",
              "Ebs": {
                "AttachTime": "2024-12-27T12:25:30+00:00",
                "DeleteOnTermination": true,
                "Status": "attached",
                "VolumeId": "vol-0746537730a0bbbe5"
              }
            }
          ],
          "ClientToken": "44425dbe-791c-490b-9dd8-95f8a3c66af1",
          "EbsOptimized": true,
          "EnaSupport": true,
          "Hypervisor": "xen",
          "IamInstanceProfile": {
            "Arn": "arn:aws:iam::277707135838:instance-profile/ec2-instance-roles",
            "Id": "AIPAUBKFCTNPNWMOVAQOR"
          },
          "NetworkInterfaces": [
            {
              "DeviceIndex": 0,
              "SubnetId": "subnet-0a0b0b0b",
              "PrivateIpAddress": "10.0.0.10",
              "PrivateDnsName": "ip-10-0-0-10.ap-south-1.compute.amazonaws.com",
              "Status": "in-use"
            }
          ],
          "Placement": {
            "AvailabilityZone": "ap-south-1-availability-zone-1",
            "Group": "default",
            "Tenancy": "default"
          },
          "Platform": "Linux",
          "PlatformDetails": "Linux/Ubuntu",
          "State": "running",
          "StateReason": {
            "Code": "EC2_INSTANCE_RUNNING",
            "Message": "The instance is running."
          },
          "Tags": [],
          "VpcId": "vpc-0a0b0b0b"
        }
      ]
    }
  ]
}
-- More -- |
PS C:\Users\Asus> aws s3 ls
An error occurred (AccessDenied) when calling the ListBuckets operation: User: arn:aws:iam::277707135838:user/sid is not authorized to perform: s3:ListAllMyBuckets because no identity-based policy allows the s3:ListAllMyBuckets action
PS C:\Users\Asus> |
```

MFA

IAM user → security → add MFA

Multi-factor authentication (MFA) (1)

RemoveResyncAssign MFA device

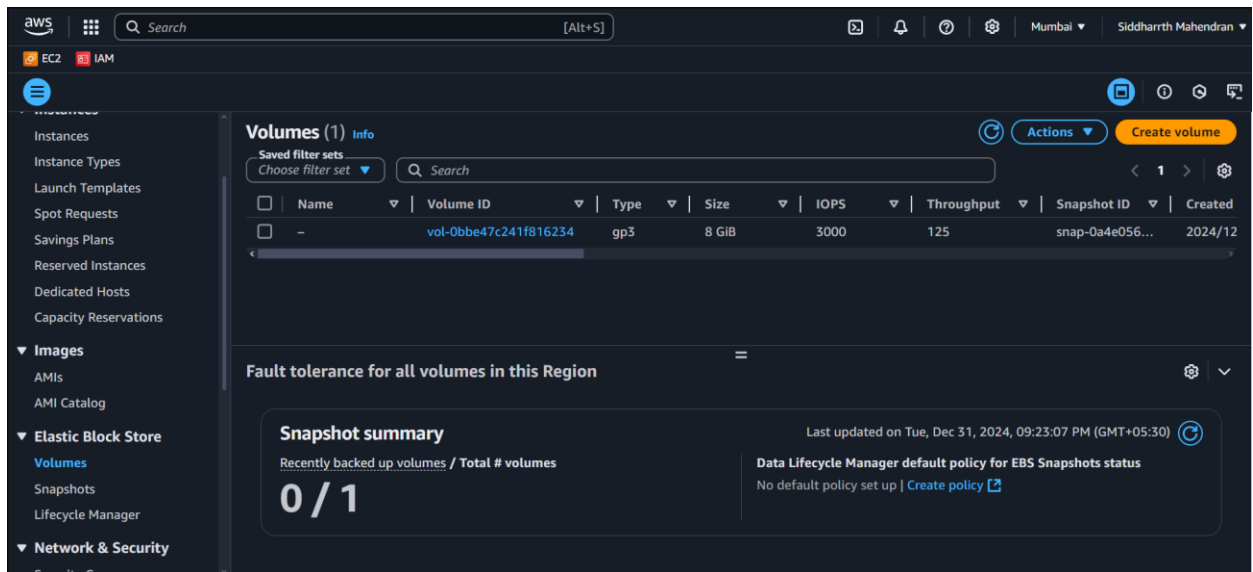
Use MFA to increase the security of your AWS environment. Signing in with MFA requires an authentication code from an MFA device. Each user can have a maximum of 8 MFA devices assigned. [Learn more](#)

Type	Identifier	Certifications	Created on
<input type="radio"/> Virtual	arn:aws:iam::277707135838:mfa/sid_iam	Not Applicable	Tue Dec 31 2024

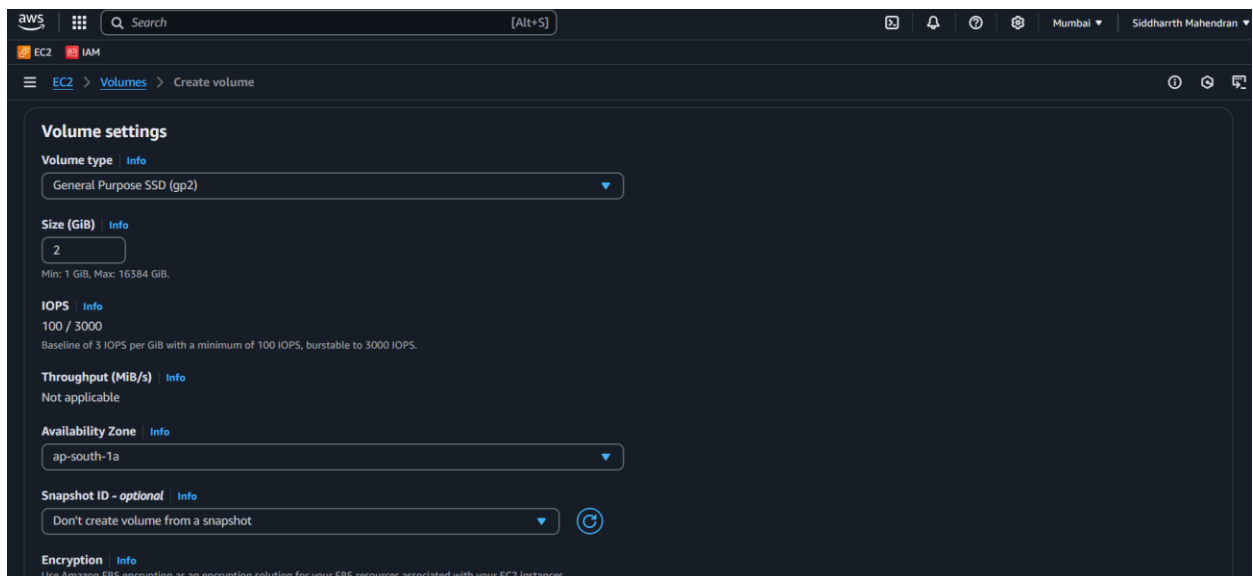
Creating Elastic volume in EC2 instance

Step-1: Create a instance

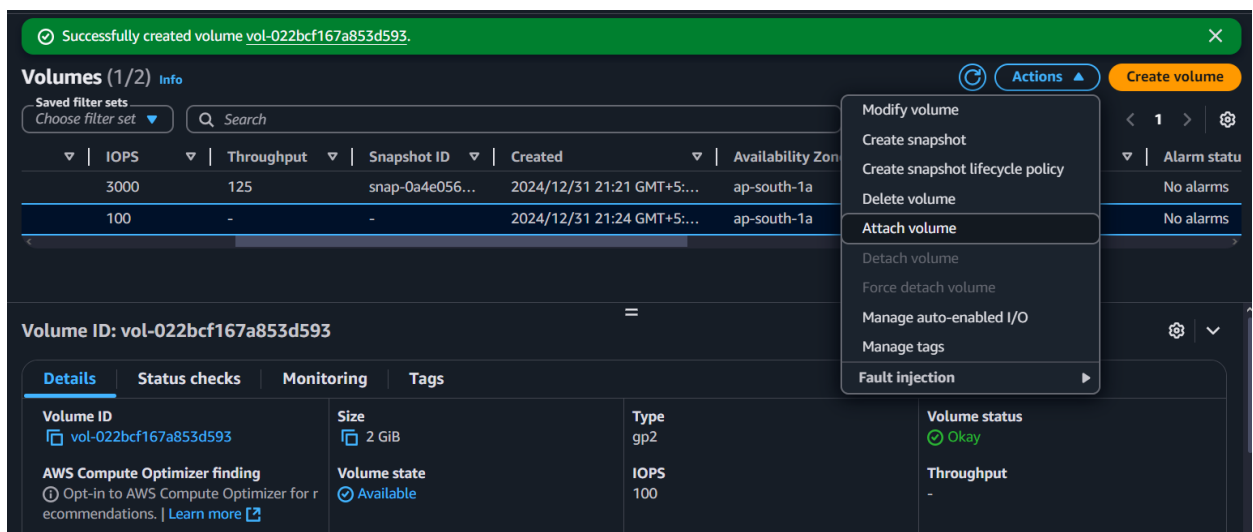
Step-2: Create a volume elastic block storage → volume → create volume



Step-3: create a volume



Step-4: Attach the volume to instance



EC2 > Volumes > vol-022bcf167a853d593 > Attach volume

Basic details

Volume ID
vol-022bcf167a853d593

Availability Zone
ap-south-1a

Instance [Info](#)
i-07394c4dbf1661c64 (my-instance-1) (running)

Only instances in the same Availability Zone as the selected volume are displayed.

Device name [Info](#)
/dev/sdb

Recommended device names for Linux: /dev/xvda for root volume, /dev/sd[f-p] for data volumes.

ⓘ Newer Linux kernels may rename your devices to /dev/xvdf through /dev/xvdp internally, even when the device name entered here (and shown in the details) is /dev/sdf through /dev/sdp.

[Cancel](#) [Attach volume](#)

Step-5: Create a partition for volume

```
[root@ip-172-31-37-125 ~]# fdisk /dev/xvdb

Welcome to fdisk (util-linux 2.37.4).
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 0xbe5c6ea2.

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 (2048-4194303, default 2048):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (2048-4194303, default 4194303):

Created a new partition 1 of type 'Linux' and of size 2 GiB.

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

Step-6: Create a filesystem and create directory

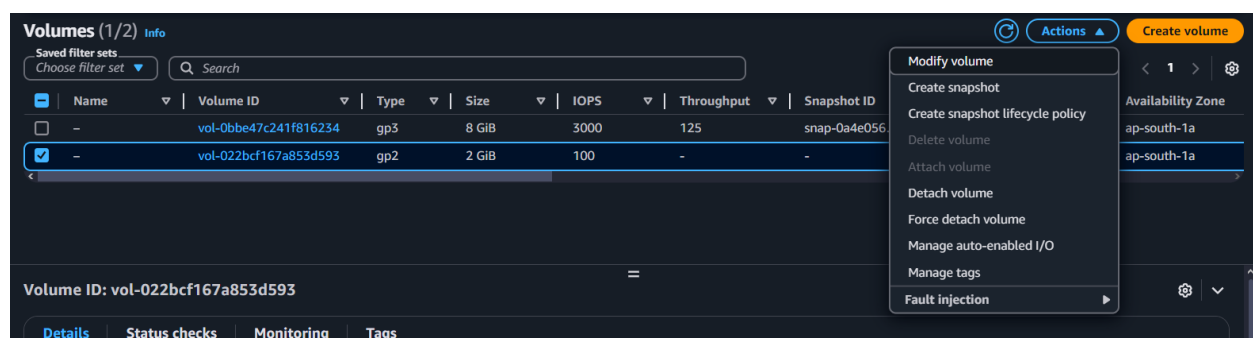
```
[root@ip-172-31-37-125 ~]# mkfs.xfs /dev/xvdb1
meta-data=/dev/xvdb1            isize=512    agcount=4, agsize=131008 blks
       =                       sectsz=512    attr=2, projid32bit=1
       =                       crc=1        finobt=1, sparse=1, rmapbt=0
       =                       reflink=1    bigtime=1 inobtcount=1
data      =                       bsize=4096   blocks=524032, imaxpct=25
       =                       sunit=0      swidth=0 blks
naming    =version 2            bsize=4096   ascii-ci=0, ftype=1
log       =internal log        bsize=4096   blocks=16384, version=2
       =                       sectsz=512    sunit=0 blks, lazy-count=1
realtime  =none                extsz=4096   blocks=0, rtextents=0
[root@ip-172-31-37-125 ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda         202:0    0   8G  0 disk
├─xvda1      202:1    0   8G  0 part /
├─xvda127    259:0    0   1M  0 part
└─xvda128    259:1    0  10M  0 part /boot/efi
xvdb         202:16   0   2G  0 disk
└─xvdb1      202:17   0   2G  0 part
[root@ip-172-31-37-125 ~]# mkdir /disk
```

Step-7: Mount the disk

```
[root@ip-172-31-37-125 ~]# mount /dev/xvdb1 /disk
[root@ip-172-31-37-125 ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda         202:0    0   8G  0 disk
├─xvda1      202:1    0   8G  0 part /
├─xvda127    259:0    0   1M  0 part
└─xvda128    259:1    0  10M  0 part /boot/efi
xvdb         202:16   0   2G  0 disk
└─xvdb1      202:17   0   2G  0 part /disk
```

Extend the volume

Step-1: modify the volume



The screenshot shows the AWS Management Console interface for Volumes. A table lists two volumes:

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID
-	vol-0bbe47c241f816234	gp3	8 GiB	3000	125	snap-0a4e056
<input checked="" type="checkbox"/>	vol-022bcf167a853d593	gp2	2 GiB	100	-	-

The 'Modify volume' context menu is open for the selected volume, showing options like 'Create snapshot', 'Delete volume', and 'Attach volume'.

Step-2: change the volume size

Modify volume [Info](#)

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

Volume details

Volume ID

vol-022bcf167a853d593

Volume type [Info](#)

General Purpose SSD (gp2)

Size (GiB) [Info](#)

3

Misc: 1 GiB, Mac: 16384 GiB.

IOPS [Info](#)

100/3000

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

[Cancel](#)

[Modify](#)

```
[root@ip-172-31-37-125 ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda        202:0    0   8G  0 disk
├─xvda1     202:1    0   8G  0 part /
├─xvda127   259:0    0   1M  0 part
└─xvda128   259:1    0  10M  0 part /boot/efi
xvdb        202:16   0   3G  0 disk
└─xvdb1     202:17   0   2G  0 part /disk
```

```
[root@ip-172-31-37-125 ~]# growpart /dev/xvdb 1
CHANGED: partition=1 start=2048 old: size=4192256 end=4194304 new: size=6289375 end=6291423
```

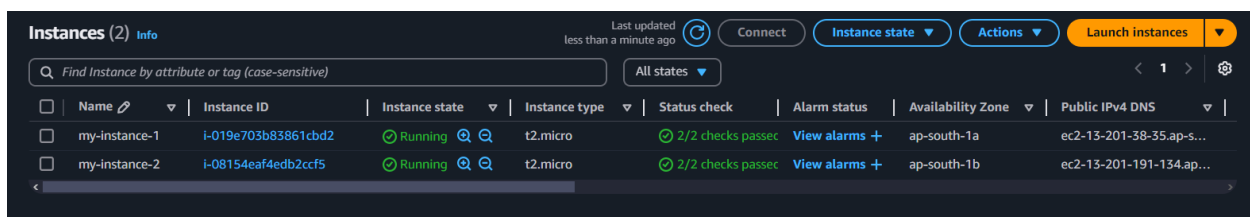
```
[root@ip-172-31-37-125 ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda        202:0    0   8G  0 disk
├─xvda1     202:1    0   8G  0 part /
├─xvda127   259:0    0   1M  0 part
└─xvda128   259:1    0  10M  0 part /boot/efi
xvdb        202:16   0   3G  0 disk
└─xvdb1     202:17   0   3G  0 part /disk
[root@ip-172-31-37-125 ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        4.0M   0    4.0M   0% /dev
tmpfs           475M   0    475M   0% /dev/shm
tmpfs           190M  448K   190M   1% /run
/dev/xvda1      8.0G  1.6G   6.4G  20% /
tmpfs           475M   0    475M   0% /tmp
/dev/xvda128    10M   1.3M   8.7M  13% /boot/efi
tmpfs           95M   0     95M   0% /run/user/1000
/dev/xvdb1      2.0G   47M   1.9G   3% /disk
```

```
[root@ip-172-31-37-125 ~]# xfs_growfs -d /disk
meta-data=/dev/xvdb1            isize=512    agcount=4, agsize=131008 blks
        =                       sectsz=512    attr=2, projid32bit=1
        =                       crc=1        finobt=1, sparse=1, rmapbt=0
        =                       reflink=1     bigtime=1 inobtcount=1
data      =                       bsize=4096   blocks=524032, imaxpct=25
        =                       sunit=0       swidth=0 blks
naming    =version 2            bsize=4096   ascii-ci=0, ftype=1
log        =internal log        bsize=4096   blocks=16384, version=2
        =                       sectsz=512    sunit=0 blks, lazy-count=1
realtime  =none                 extsz=4096   blocks=0, rtextents=0
data blocks changed from 524032 to 786171
[root@ip-172-31-37-125 ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda        202:0    0   8G  0 disk
└─xvda1     202:1    0   8G  0 part /
└─xvda127   259:0    0    1M  0 part
└─xvda128   259:1    0   10M  0 part /boot/efi
xvdb        202:16   0    3G  0 disk
└─xvdb1     202:17   0    3G  0 part /disk
[root@ip-172-31-37-125 ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        4.0M   0  4.0M   0% /dev
tmpfs           475M   0  475M   0% /dev/shm
tmpfs           190M  448K  190M   1% /run
/dev/xvda1      8.0G  1.6G  6.4G  20% /
tmpfs           475M   0  475M   0% /tmp
/dev/xvda128    10M  1.3M  8.7M  13% /boot/efi
tmpfs           95M    0   95M   0% /run/user/1000
/dev/xvdb1      3.0G   54M  2.9G   2% /disk
```

Elastic Load Balancing

An Elastic Load Balancer (ELB) is an AWS-managed service that automatically distributes incoming application traffic across multiple targets, such as EC2 instances, containers, or IP addresses, in one or more Availability Zones. It enhances application availability, fault tolerance, and scalability.

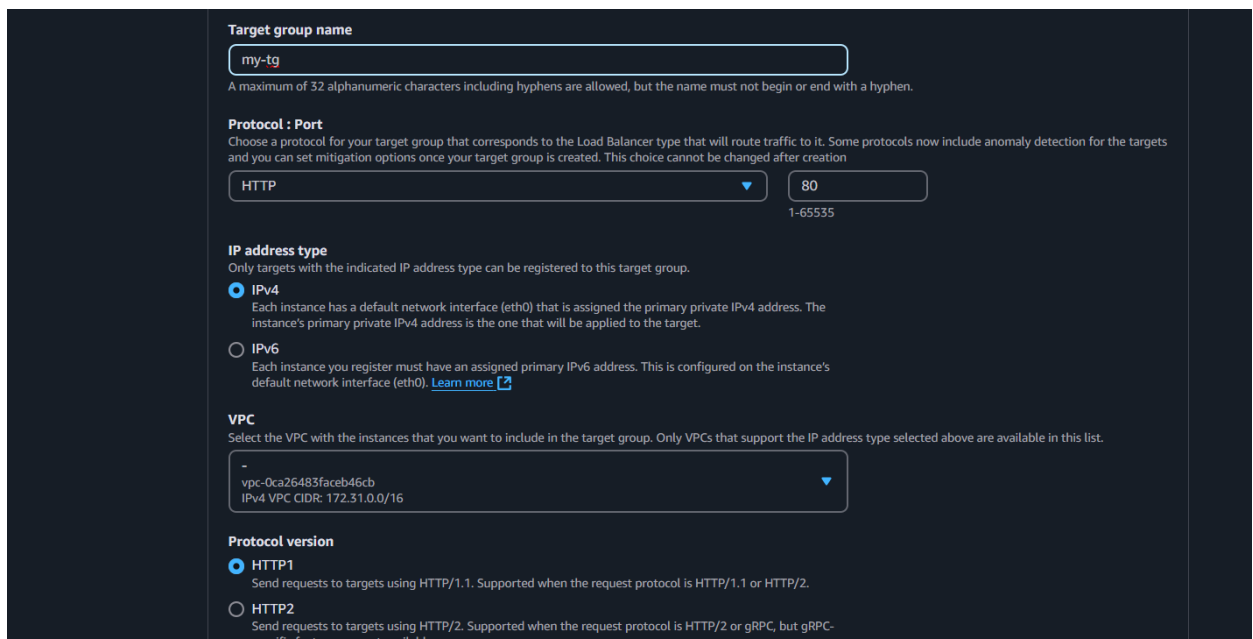
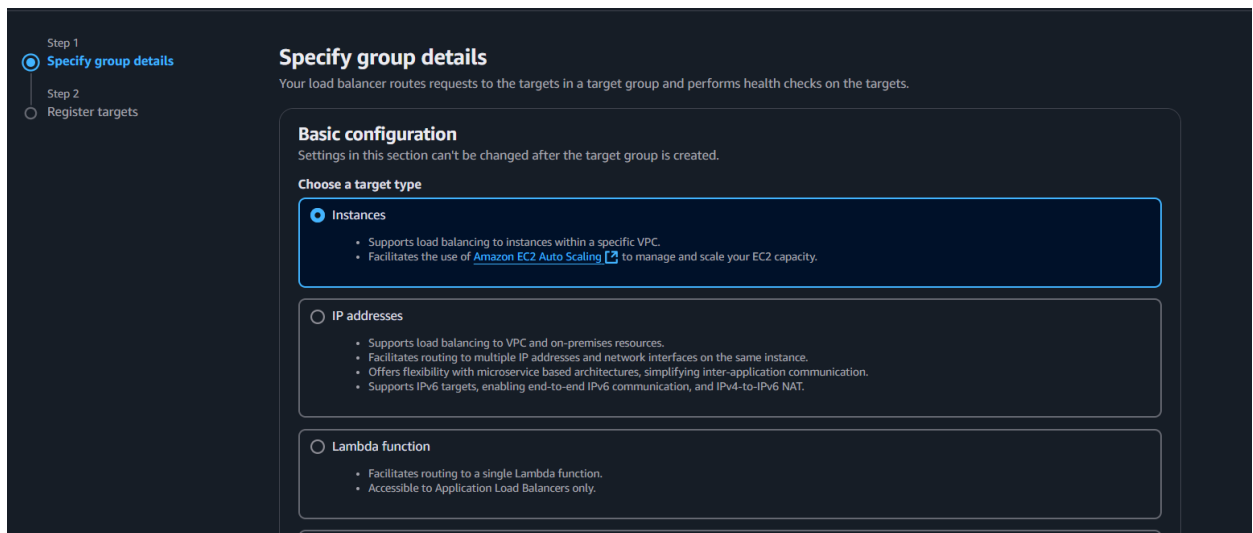
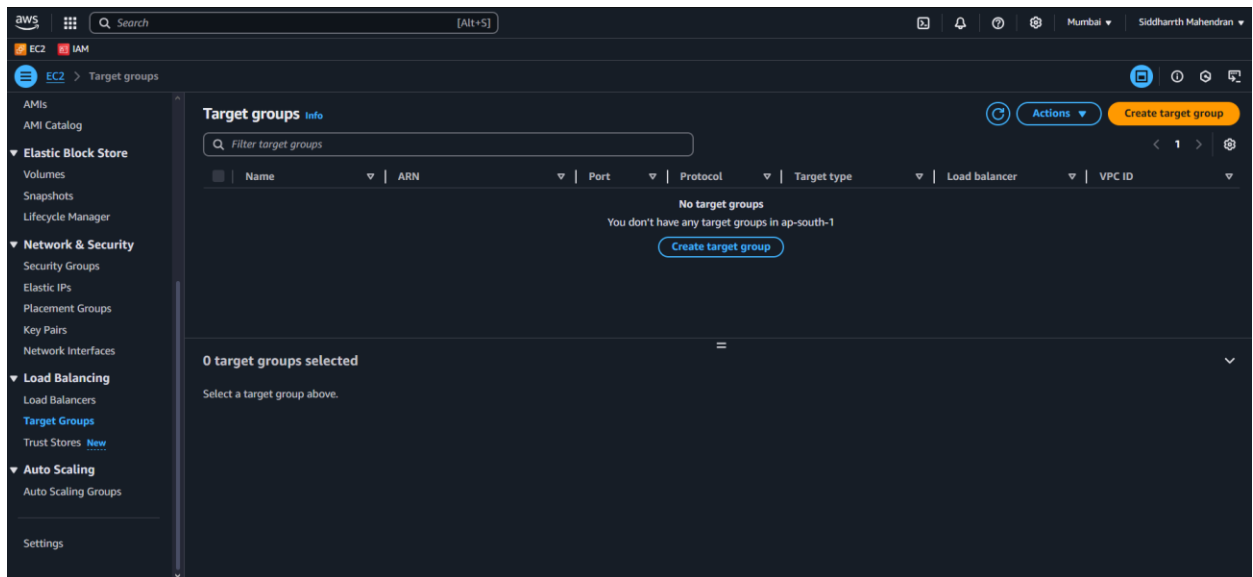
Step-1: Create a two instance in two instances with different availability zone with bootstrap script.

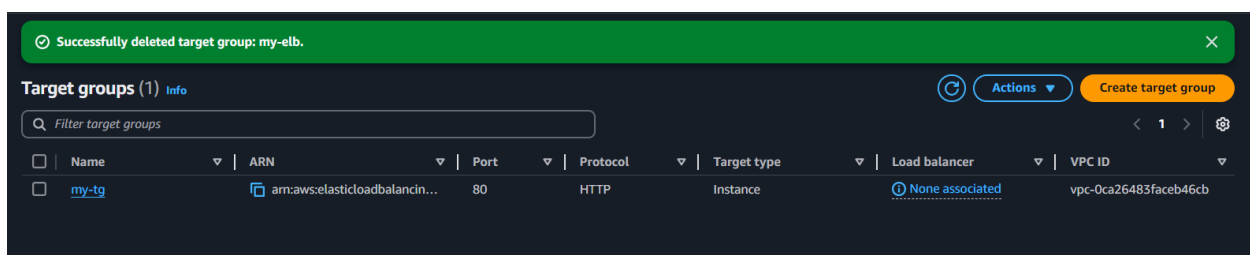
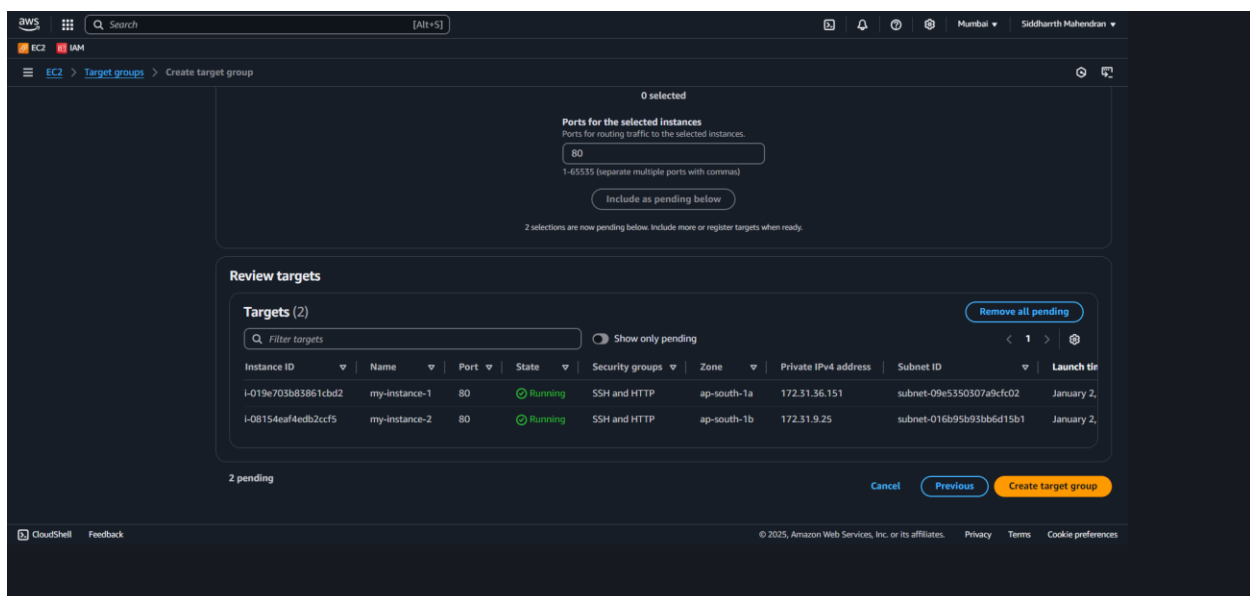
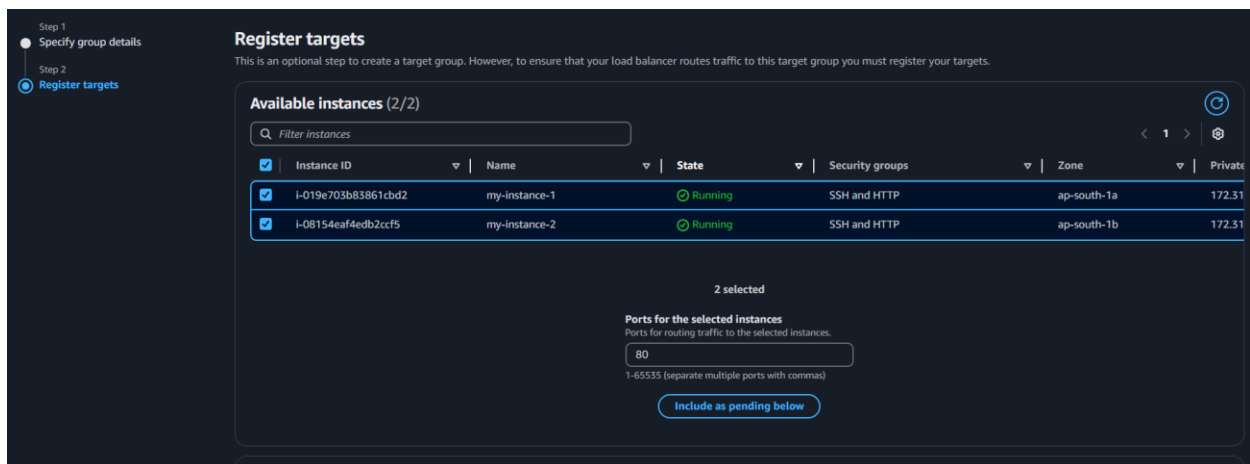


The screenshot shows the AWS Management Console 'Instances' page. It displays two EC2 instances, 'my-instance-1' and 'my-instance-2', both in a 'Running' state. 'my-instance-1' is located in the 'ap-south-1a' availability zone, and 'my-instance-2' is in the 'ap-south-1b' availability zone. Both instances are t2.micro type and have passed their status checks.

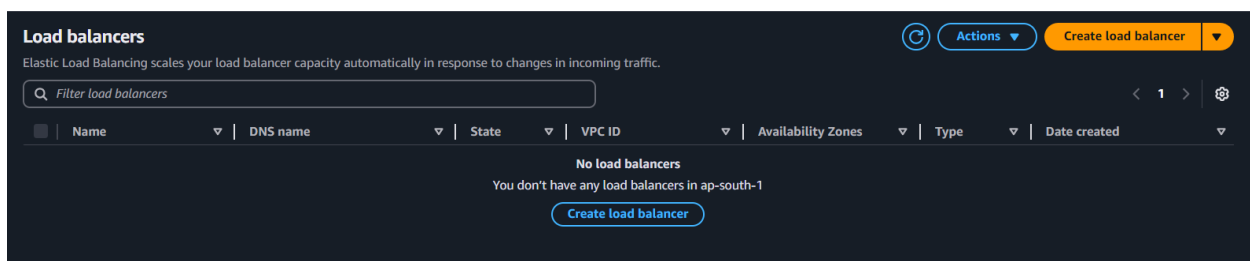
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
my-instance-1	i-019e703b83861cbd2	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1a	ec2-13-201-38-35.ap-s...
my-instance-2	i-08154eaf4edb2ccf5	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1b	ec2-13-201-191-134.ap...

Step-2: Create a target group



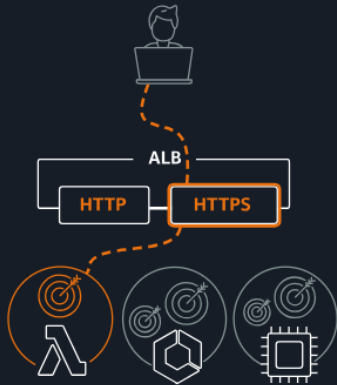


Step-3: Create a load balancers



Load balancer types

Application Load Balancer [Info](#)

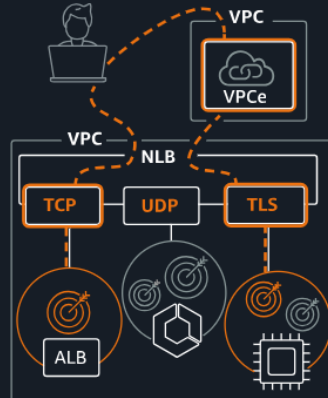


Choose an Application Load Balancer when you need a flexible feature set for your applications with HTTP and HTTPS traffic. Operating at the request level, Application Load Balancers provide advanced routing and visibility features targeted at application architectures, including microservices and containers.

Create

Create Application Load Balancer

Network Load Balancer [Info](#)



Choose a Network Load Balancer when you need ultra-high performance, TLS offloading at scale, centralized certificate deployment, support for UDP, and static IP addresses for your applications. Operating at the connection level, Network Load Balancers are capable of handling millions of requests per second securely while maintaining ultra-low latencies.

Create

Gateway Load Balancer [Info](#)



Choose a Gateway Load Balancer when you need to deploy and manage a fleet of third-party virtual appliances that support GENEVE. These appliances enable you to improve security, compliance, and policy controls.

Create

EC2

IAM

Search

[Alt+S]

Mumbai

Siddharth Mahendran

EC2 > Load balancers > Create Application Load Balancer

Basic configuration

Load balancer name

Name must be unique within your AWS account and can't be changed after the load balancer is created.

my-elb

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Scheme

Info

Scheme can't be changed after the load balancer is created.

☒ Internet-facing

- Serves Internet-facing traffic.
- Has public IP addresses.
- DNS name is publicly resolvable.
- Requires a public subnet.

☐ Internal

- Serves internal traffic.
- Has private IP addresses.
- DNS name is publicly resolvable.
- Compatible with the IPv4 and Dualstack IP address types.

Load balancer IP address type

Info

Select the front-end IP address type to assign to the load balancer. The VPC and subnets mapped to this load balancer must include the selected IP address types. Public IPv4 addresses have an additional cost.

☒ IPv4

- Includes only IPv4 addresses.

☐ Dualstack

- Includes IPv4 and IPv6 addresses.

☐ Dualstack without public IPv4

- Includes a public IPv6 address, and private IPv4 and IPv6 addresses. Compatible with Internet-facing load balancers only.

Network mapping

Info

The load balancer routes traffic to targets in the selected subnets, and in accordance with your IP address settings.

VPC

Info

CloudShell

Feedback

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Cookie preferences

AWS

EC2

EC2 > Load balancers > Create Application Load Balancer

Search

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Network mapping

Info

The load balancer routes traffic to targets in the selected subnets, and in accordance with your IP address settings.

VPC

Info

The load balancer will exist and scale within the selected VPC. The selected VPC is also where the load balancer targets must be hosted unless routing to Lambda or on-premises targets, or if using VPC peering. To confirm the VPC for your targets, view [target groups](#). For a new VPC, [create a VPC](#).

vpc-0ca26483faceb46cb

IPv4 VPC CIDR: 172.31.0.0/16

Mappings

Info

Select at least two Availability Zones and one subnet per zone. The load balancer routes traffic to targets in these Availability Zones only. Availability Zones that are not supported by the load balancer or the VPC are not available for selection.

Availability Zones

☒ ap-south-1a (aps1-az1)

Subnet

subnet-09e5350307a9cfc02

IPv4 subnet CIDR: 172.31.32.0/20

IPv4 address

Assigned by AWS

☒ ap-south-1b (aps1-az3)

Subnet

subnet-016b95b93bb6d15b1

IPv4 subnet CIDR: 172.31.0.0/20

IPv4 address

Assigned by AWS

☐ an-south-1c (aos1-az2)

CloudShell

Feedback

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AWS

EC2

EC2 > Load balancers > Create Application Load Balancer

Search

[Alt+S]

Mumbai

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Security groups

Info

A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can [create a new security group](#).

Security groups

Select up to 5 security groups

default

sg-08d833ac12c0ff89

VPC: vpc-0ca26483faceb46cb

SSH and HTTP

sg-095a4c1147d03c005

VPC: vpc-0ca26483faceb46cb

Listeners and routing

Info

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

Listener HTTP:80

Remove

Protocol

HTTP

Port

80

1-65535

Default action

Info

Forward to

my-tg

Target type: Instance, IPv4

HTTP

Create target group

Listener tags - optional

Consider adding tags to your listener. Tags enable you to categorize your AWS resources so you can more easily manage them.

Add listener tag

You can add up to 50 more tags.

CloudShell

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Load balancers (1)

Actions

Create load balancer

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Filter load balancers

< 1 >

<input type="checkbox"/>	Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
<input type="checkbox"/>	my-elb	my-elb-576360527.ap-sout...	Provisioning..	vpc-0ca26483faceb46cb	2 Availability Zones	application	January 2, 2025, 12:21 ...

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EC2 > Load balancers

ARC zonal shift for Application Load Balancers has changed

Learn more

Use of Amazon Application Recovery Controller (ARC) zonal shift now requires the Application Load Balancer attribute ARC zonal shift integration to be enabled.

ARC zonal shift now supports cross-zone enabled Application Load Balancers.

Load balancers (1/1)

Actions

Create load balancer

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Filter load balancers

Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
my-elb	my-elb-576360527.ap-sout...	Active	vpc-0ca26483faceb46cb	2 Availability Zones	application	January 2, 2025, 12:21 (UTC...

Load balancer: my-elb

Load balancer type

Application

Status

Active

VPC

vpc-0ca26483faceb46cb

Load balancer IP address type

IPv4

Scheme

Internet-facing

Hosted zone

zpf97RAFLKTNZK

Availability Zones

subnet-016b95693bb6d15b1 ap-south-1b (aps1-a23)

subnet-09e5350307a9cf02 ap-south-1a (aps1-a21)

Date created

January 2, 2025, 12:21 (UTC+05:30)

Load balancer ARN

arn:aws:elasticloadbalancing:ap-south-1:277707135838:loadbalancer/app/my-elb/33cd2be52dd62164

DNS name Info

my-elb-576360527.ap-south-1.elb.amazonaws.com (A Record)

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