

Amazon Web Services (AWS)

→ facilitator had a company with most of the employee working from home how it was made possible?
cloud services

→ AWS source for Amazon's 99% revenue.

Reason for Amazon's skyrocketed growth.

→ AWS collection of remote computing services.

Provided over internet

→ AWS is made up of hardwares at 33 geographical locations

called regions

→ And 105 availability zones

Above data is updated to the date of this being written.

⇒ What are regions and availability zones?

- Region is Physical geographical locations which have AWS offices consisting of All the required hardware.
Interesting thing is they are all self reliant in everything
- Availability Zones they are within above mentioned Regions, one Region can consist more than one availability zones. They are insulated to tackle failures and to provide low latency network connectivity to provide their services 24x7.
- Datacenters consists the necessary hardware for providing services can be 1 or more in a single availability zone they are usually a 100 km apart.

→ Availability & scalability
(with elasticity)

→ AWS works on Pay as you go. Rented Services.

→ AWS snowball it's a data transfer solution accelerating
the rate from GB to PB (data transfer may be required
for duplication, migration or increase of failure.)
'moving data literally on tracks'

→ 200 plus different services (pay only for what you use)

→ AWS certifications

[different levels]

AWS certified
practitioner

(entry level)

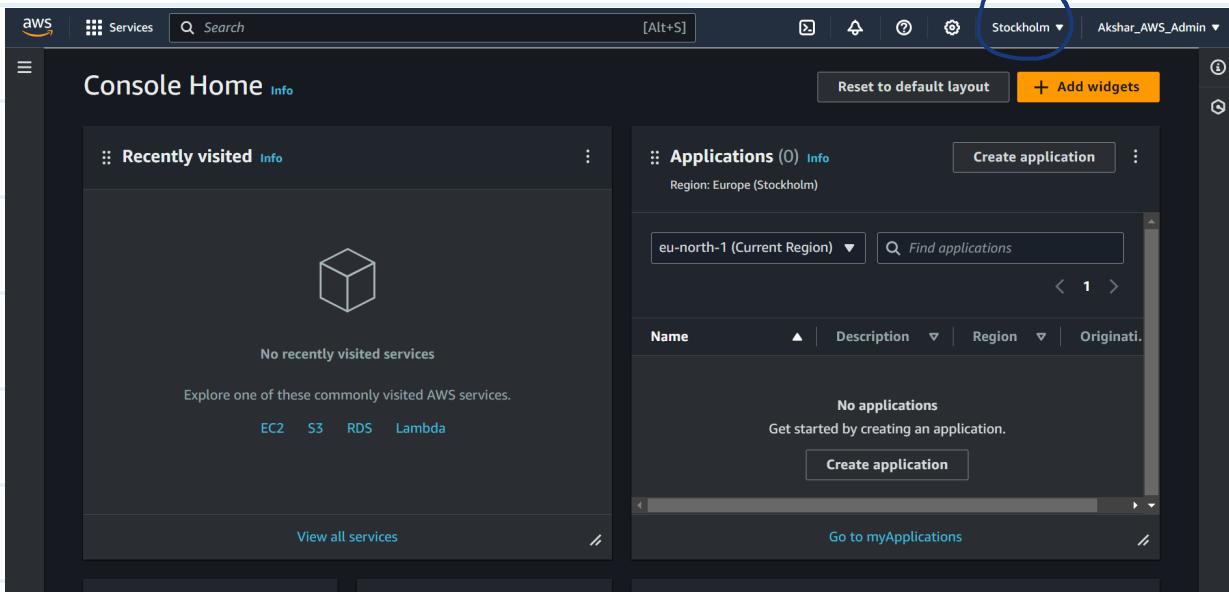
→ Associate and soon
level

Some Services,

EC2 (Electronic Cloud Compute [c2])

Login AWS as root user

Console Home will be opened.



Aim create an instance of virtual machine with windows with a server on it.

go to services

Console Home Info

Recently visited Info

No recently visited services.

Explore one of these commonly visited AWS services.

EC2 S3 RDS Lambda

[View all services](#)

Applications (0) Info

Region: Europe (Stockholm)

eu-north-1 (Current Region) ▼

Name	Description	Region	Originati.
No applications			

[Create application](#)

[Go to myApplications](#)

Recently visited

Favorites

All services

- Analytics
- Application Integration
- Blockchain
- Business Applications
- Cloud Financial Management
- Compute
- Containers
- Customer Enablement
- Database
- Developer Tools
- End User Computing

EC2

comes under
Compute services

Recently visited

Console Home

View resource insights, service shortcuts, and

Build and run production web applications at scale

Batch
Fully managed batch processing at any scale

☆ **EC2**
Virtual Servers in the Cloud

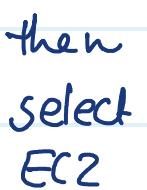
EC2 Image Builder
A managed service to automate build, customize and deploy

Elastic Beanstalk
Run and Manage Web Apps

Lambda
Run code without thinking about servers

Lightsail
Launch and Manage Virtual Private Servers

AWS Outposts



AWS Services Search [Alt+S] Sydney Akshar_AWS_Admin

EC2 Dashboard

- EC2 Global View
- Events
- Instances
 - Instances
 - Instance Types
 - Launch Templates
 - Spot Requests
 - Savings Plans
 - Reserved Instances
 - Dedicated Hosts
 - Capacity Reservations
 - New
- Images
 - AMIs
 - AMI Catalog
- Elastic Block Store
 - Volumes
 - Snapshots
 - Lifecycle Manager

Resources

You are using the following Amazon EC2 resources in the Asia Pacific (Sydney) Region:

Instances (running)	0	Auto Scaling Groups	0	Dedicated Hosts	0
Elastic IPs	0	Instances	0	Key pairs	0
Load balancers	0	Placement groups	0	Security groups	1
Snapshots	0	Volumes	0		

Launch instance

To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

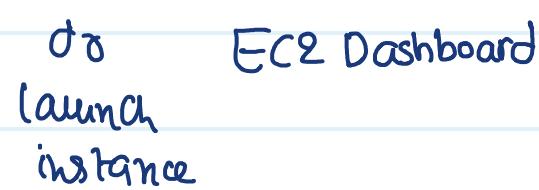
Service health

AWS Health Dashboard

Region: Asia Pacific (Sydney)
Status: This service is operating normally.

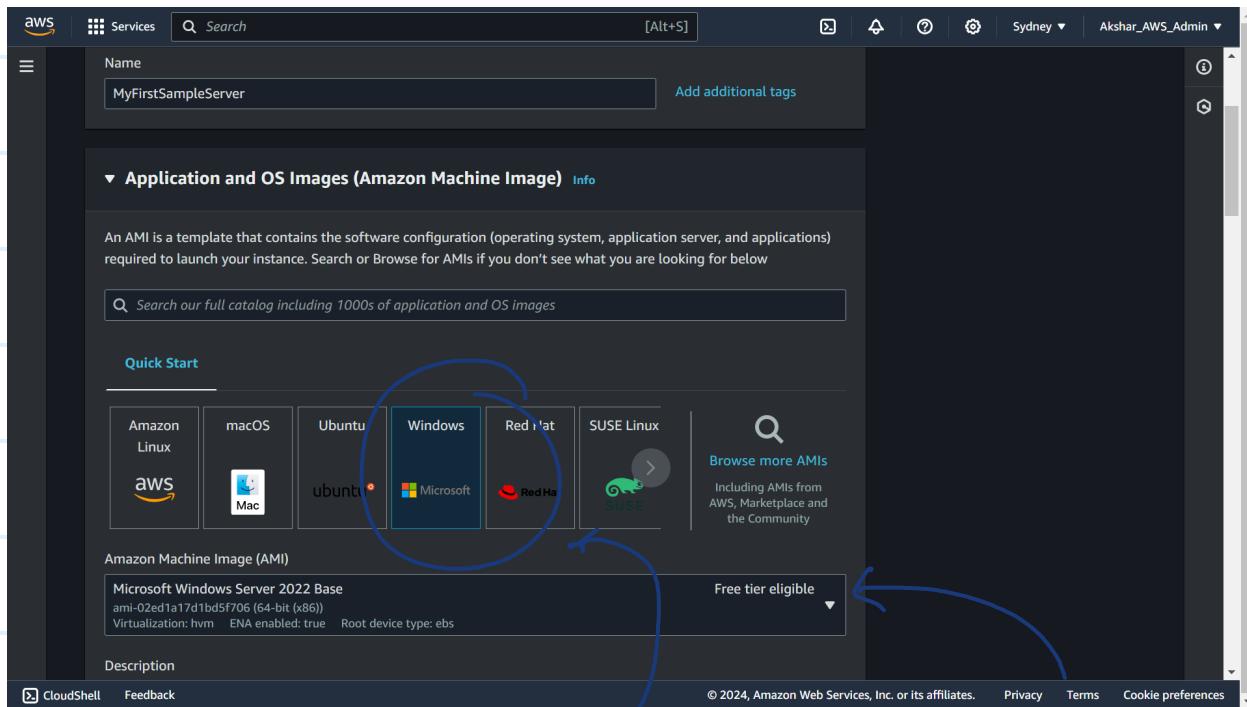
Zones

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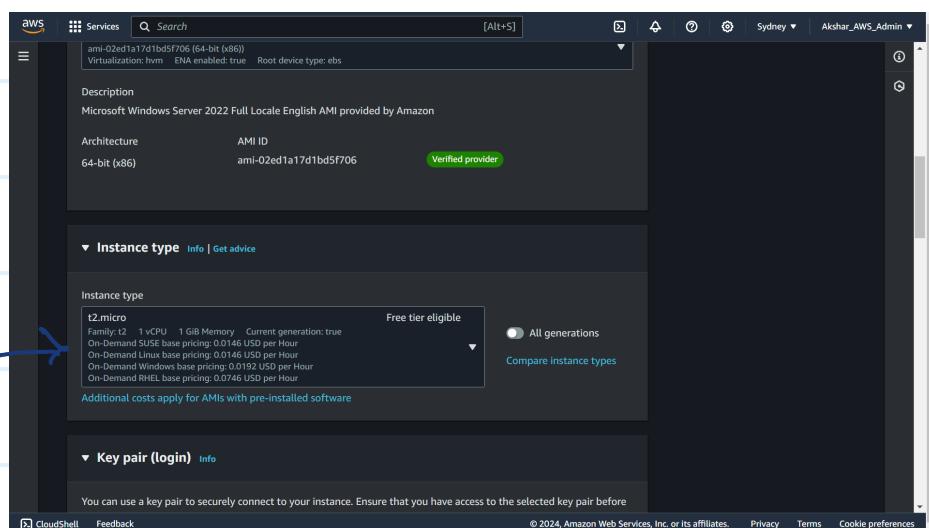


any EC2 knows as Instance

this comes under platforms as a service



windows and windows 2022 Base Server



Our machine specifications

t2 micro is free, others chargable.

Additional costs apply for AMIs with pre-installed software

Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required

Select

For Windows instances, you use a key pair to decrypt the administrator password. You then use the decrypted password to connect to your instance.

Network settings Info

Network Info
vpc-0b5d1ccebf592afb1

Subnet Info
No preference (Default subnet in any availability zone)

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Setting
Credentials
to login
to your
instance
or
virtual
machine

Additional costs apply for AMIs with pre-installed software

Create key pair

Key pair name
Key pairs allow you to connect to your instance securely.

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type

RSA RSA encrypted private and public key pair

ED25519 ED25519 encrypted private and public key pair (Not supported for Windows instances)

Private key file format

.pem For use with OpenSSH

.ppk For use with PuTTY

When prompted, store the private key in a secure and accessible location on your computer. You will need it later to connect to your instance. [Learn more](#)

Cancel

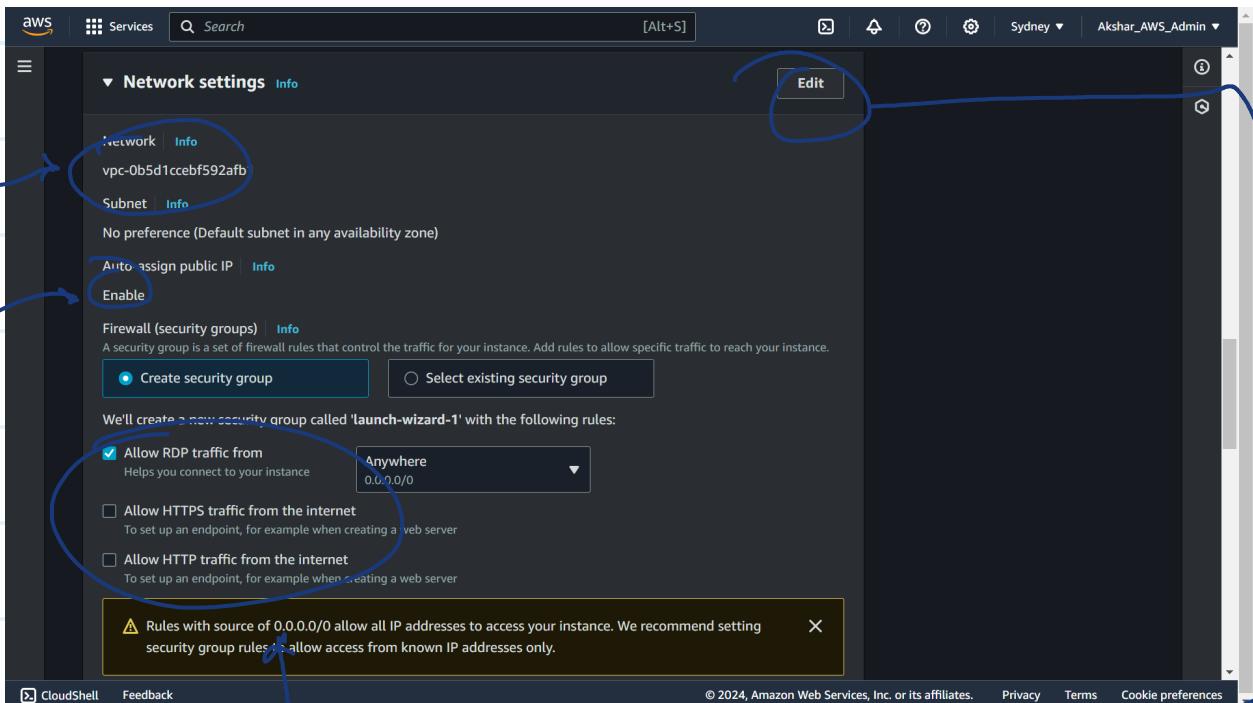
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Machine is created in sydney
now will we access it from SSH or the
otherwise

Key pair stored as file on
our admin local pc

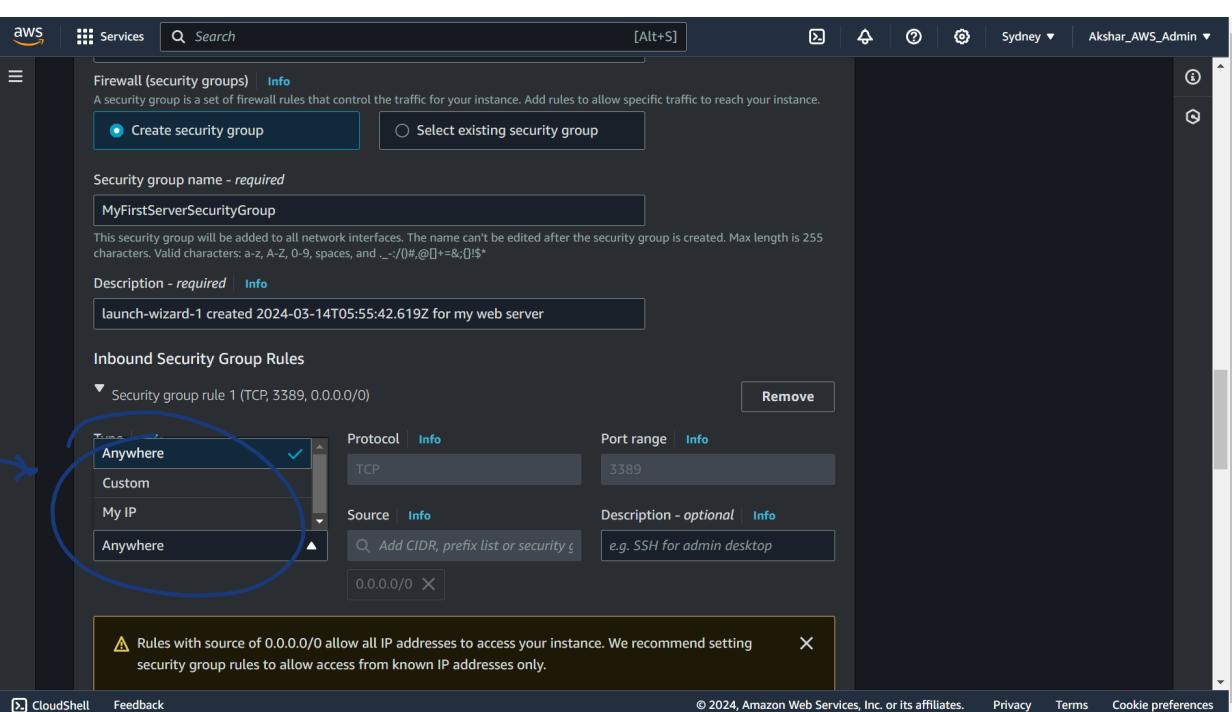
Instance of AWS virtual Private Cloud (VPC) that our instance will start into

Auto assign IP through our machines public IP



Press this before doing anything

there are different protocols for accessing our instance we will only allow this RDP
Remote Desktop Protocol to access



IP setting for our instance

This screenshot shows the 'Configure storage' section of the AWS Lambda configuration interface. It displays a single root volume of 30 GiB, type gp2, labeled as 'Root volume (Not encrypted)'. A callout points to this volume with the handwritten note: 'First is root volume where OS installed. Other are EBS volume'. Another callout points to the 'Capacity' field with the note: 'Capacity type of SSD'.

this
to
add
multiple
storages

you can launch more than 1 such instances

This screenshot shows the 'Summary' section of the AWS Lambda configuration interface. It lists the number of instances (1), software image (Windows Server 2022), virtual server type (t2.micro), firewall (New security group), and storage (1 volume - 30 GiB). A callout points to the 'Launch instance' button with the note: 'After review'.

finally
you will
get the
summary
of
instance getting
created

Success
Successfully initiated launch of instance (i-09e860dbdf159e8a2)

Next Steps

What would you like to do next with this instance, for example "create alarm" or "create backup"

Create billing and free tier usage alerts
To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds.
[Create billing alerts](#)

Connect to your instance
Once your instance is running, log into it from your local computer.
[Connect to instance](#) [Learn more](#)

Connect an RDS database
Configure the connection between an EC2 instance and a database to allow traffic flow between them.
[Connect an RDS database](#) [Create a new RDS database](#) [Learn more](#)

Create EBS snapshot policy
Create a policy that automates the creation, retention, and deletion of EBS snapshots.
[Create EBS snapshot policy](#)

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instances
instances

you will see this

Instances (1) Info

Find Instance by attribute or tag (case-sensitive)

Any state

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
MyFirstSample...	i-09e860dbdf159e8a2	Running	t2.micro	Initializing	View alarms +

Select an instance

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status
of
instances

Status check 0/2 (hardware failure)
infrastructure Failure

1/2 Platform as a service failure
OS Failure

2/2 (all working fine)

All availability zones inside a region are interconnected

availability zones in sydney region

The screenshot shows the AWS EC2 Instances page. The left sidebar is collapsed. The main area displays one instance:

Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 IP	Elastic IP	IPv6 IPs
	ap-southeast-2c	ec2-3-27-43-38.ap-sout...	3.27.43.38	-	-

A blue circle highlights the 'Availability Zone' column header. A blue bracket from the handwritten note above points to this column.

Now I want to access this created instance machine
from my local laptop

What I need,

IP address of that machine

Valid username & password for that machine

and packages on Local PC

Instances (1/1) Info

Find Instance by attribute or tag (case-sensitive)

Any state

disabled MyFirstServerSecurityGr... MyFirstSample... 2024/03/14 11:44 GMT+5:30 Windows

Instance: i-09e860dbdf159e8a2 (MyFirstSampleServer)

Details Status and alarms New Monitoring Security Networking Storage Tags

Instance summary

Instance ID i-09e860dbdf159e8a2 (MyFirstSampleServer)	Public IPv4 address 3.27.43.38 [open address]	Private IPv4 addresses 172.31.30.24
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-3-27-43-38.ap-southeast-2.compute.amazonaws.com [open address]
Hostname type	Private IP, DNS name (IPv4 only)	

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EC2 > Instances > i-09e860dbdf159e8a2 > Connect to instance

Connect to instance Info

Connect to your instance i-09e860dbdf159e8a2 (MyFirstSampleServer) using any of these options

Session Manager RDP client EC2 serial console

Instance ID
i-09e860dbdf159e8a2 (MyFirstSampleServer)

Connection Type

Connect using RDP client
Download a file to use with your RDP client and retrieve your password.

Connect using Fleet Manager
To connect to the instance using Fleet Manager Remote Desktop, the SSM Agent must be installed and running on the instance. For more information, see [Working with SSM Agent](#)

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:

[Download remote desktop file](#)

When prompted, connect to your instance using the following username and password:

Public DNS
ec2-3-27-43-38.ap-southeast-2.compute.amazonaws.com

Username info
Administrator

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do connect

download server image file

username

Connection Type

- Connect using RDP client
Download a file to use with your RDP client and retrieve your password.
- Connect using Fleet Manager
To connect to the instance using Fleet Manager Remote Desktop, the SSM Agent must be installed and running on the instance. For more information, see [Working with SSM Agent](#)

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:

[Download remote desktop file](#)

When prompted, connect to your instance using the following username and password:

Public DNS
 ec2-3-27-43-38.ap-southeast-2.compute.amazonaws.com

Username [Info](#)
 Administrator

Password [Get password](#)

If you've joined your instance to a directory, you can use your directory credentials to connect to your instance.

Cancel

EC2 > Instances > i-09e860dbdf159e8a2 > Get Windows password [Info](#)

Get Windows password [Info](#)

Use your private key to retrieve and decrypt the initial Windows administrator password for this instance.

Instance ID
 i-09e860dbdf159e8a2 (MyFirstSampleServer)

Key pair associated with this instance
 MvFirstSampleServerKey

Private key
either upload your private key file or copy and paste its contents into the field below.

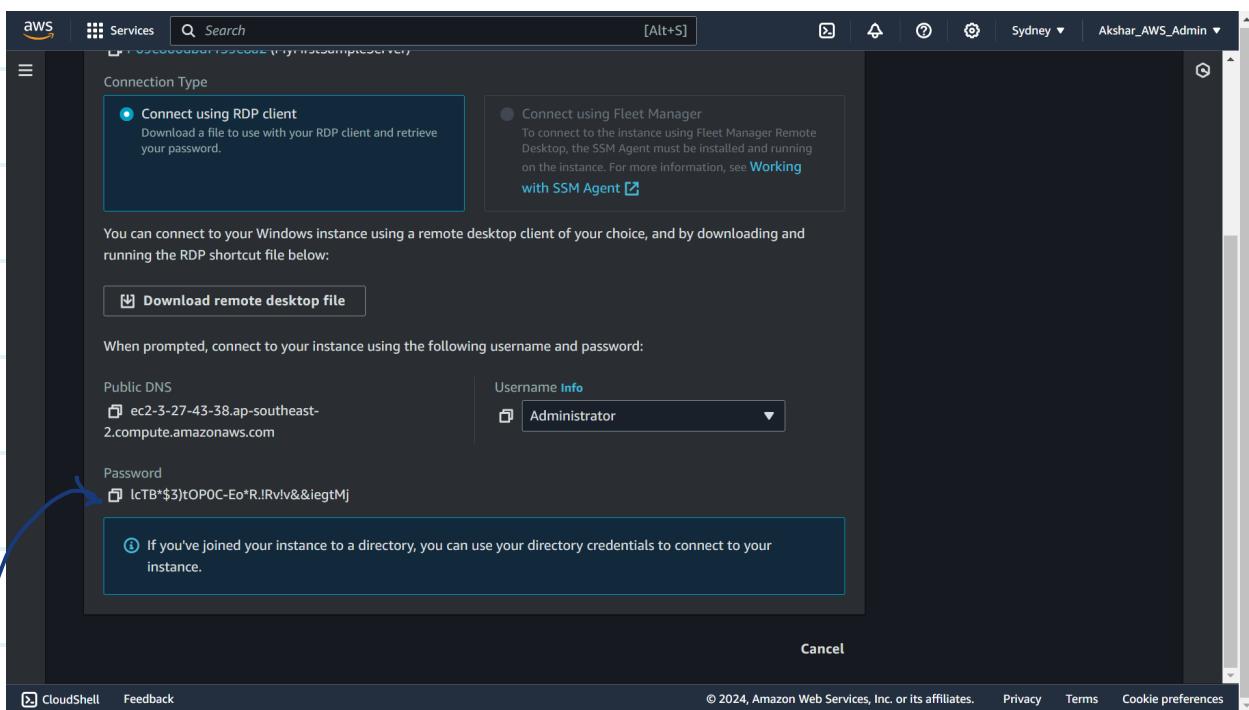
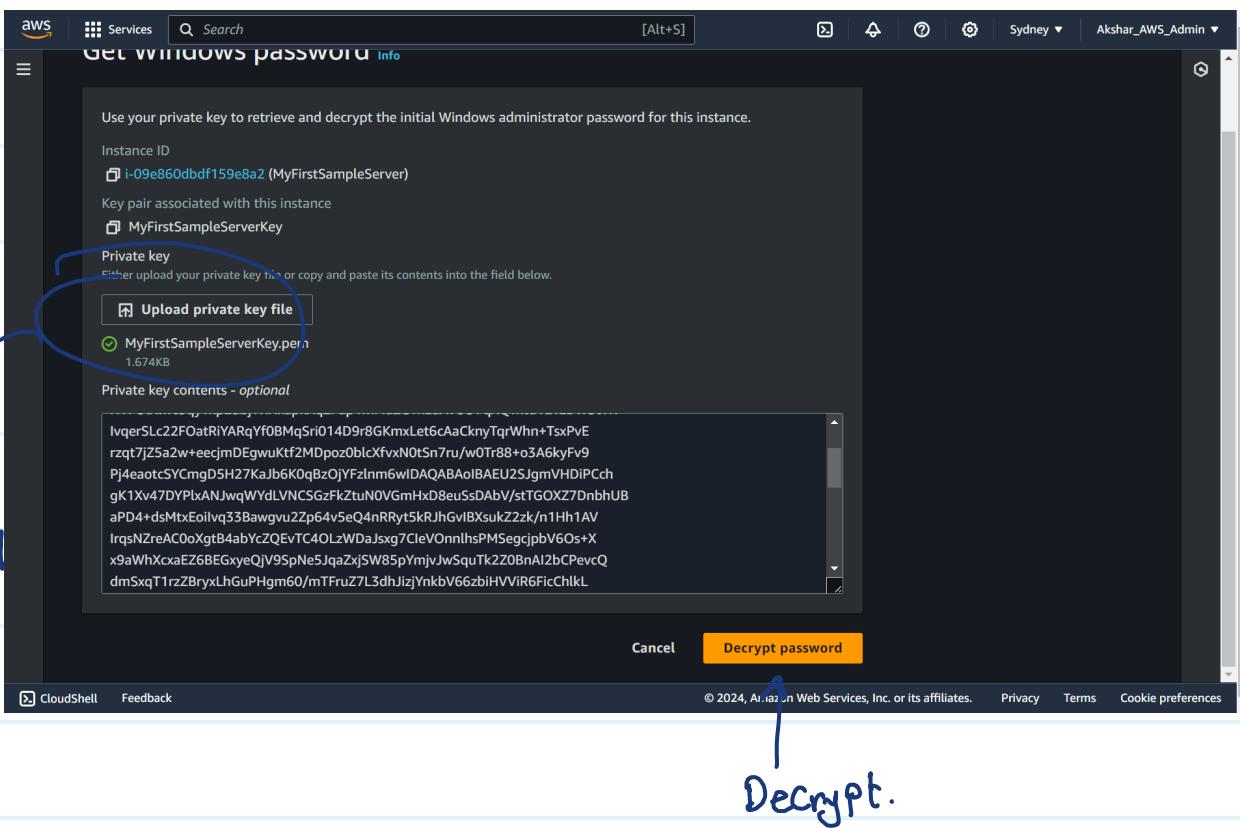
[Upload private key file](#)

Private key contents - optional

Private key contents

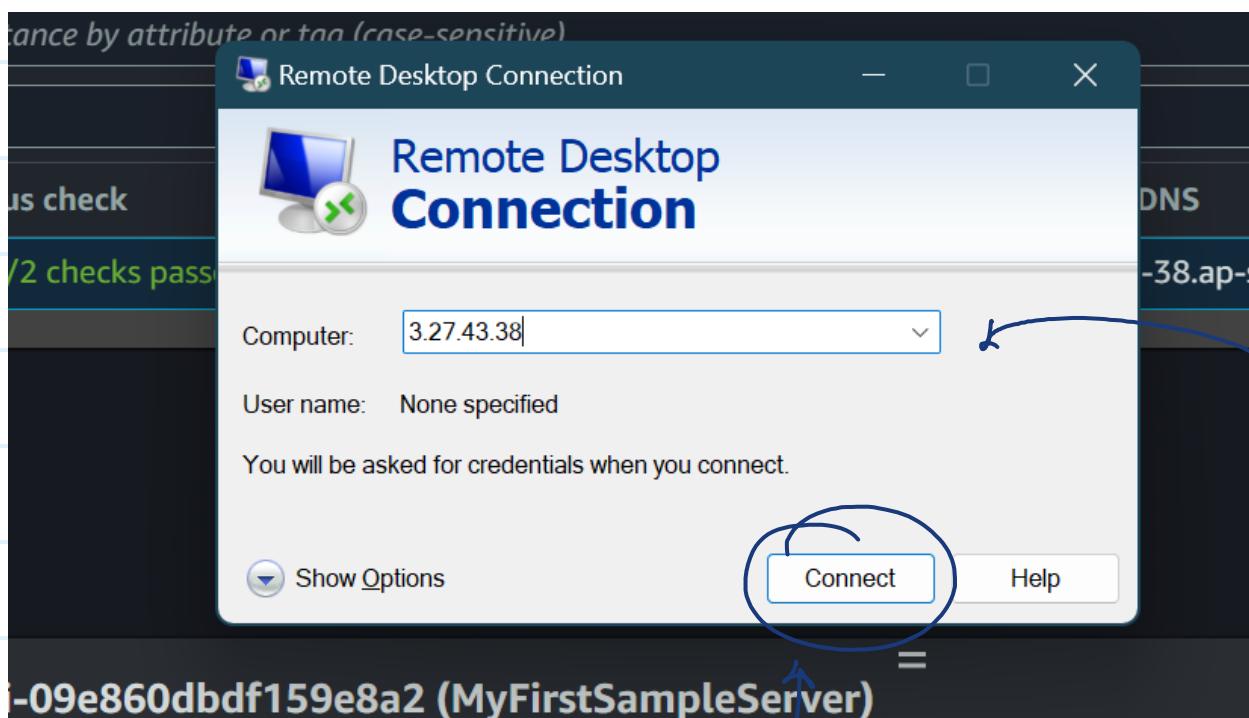
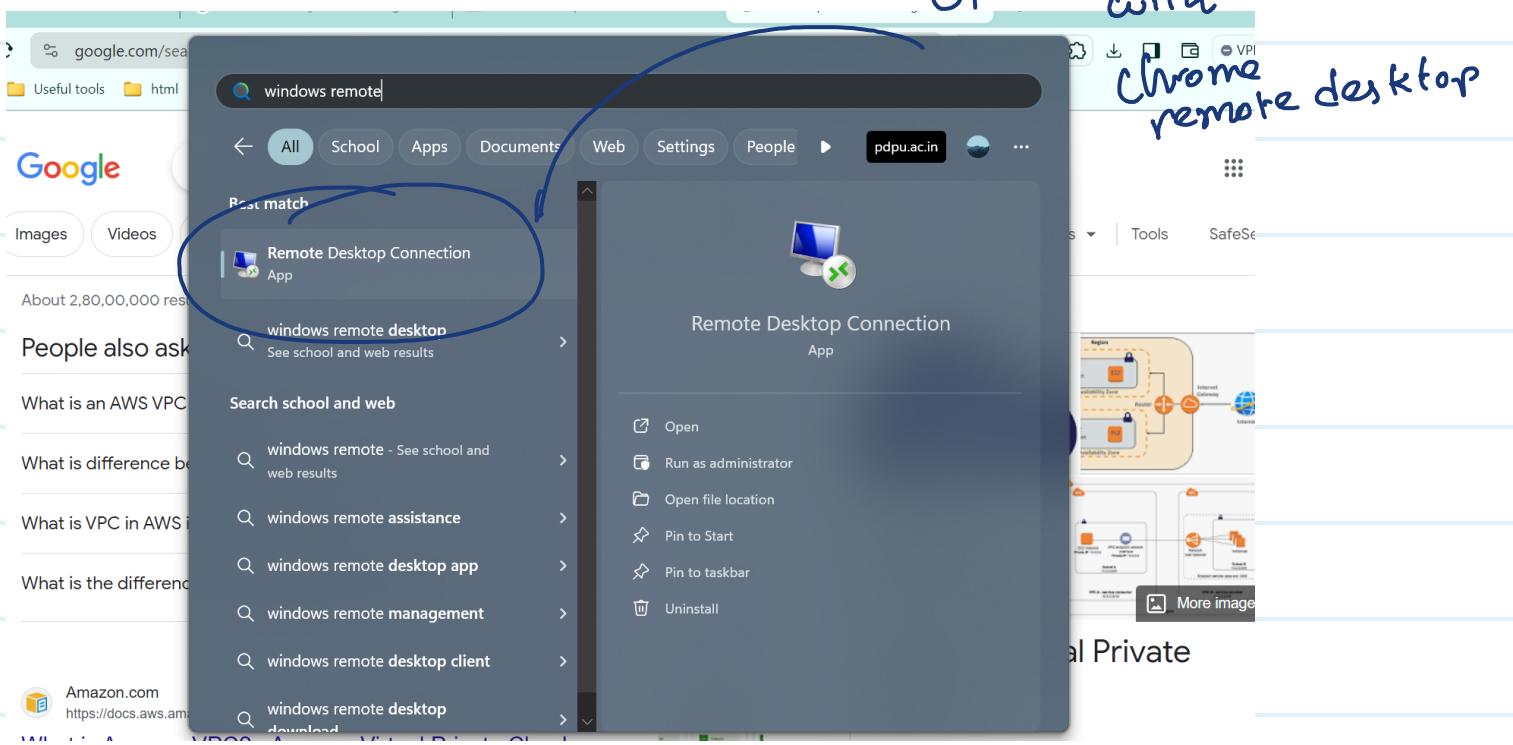
Cancel [Decrypt password](#)

Upload file we downloaded way before



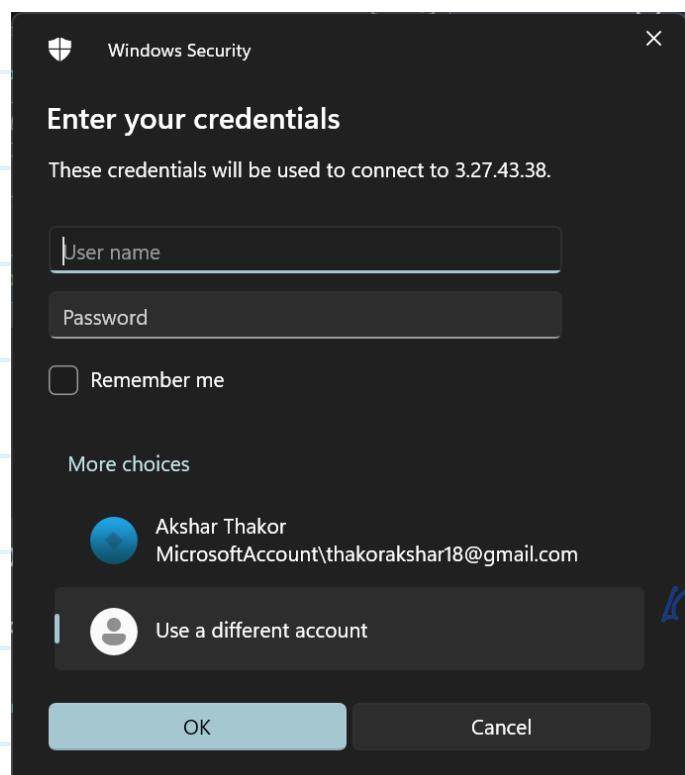
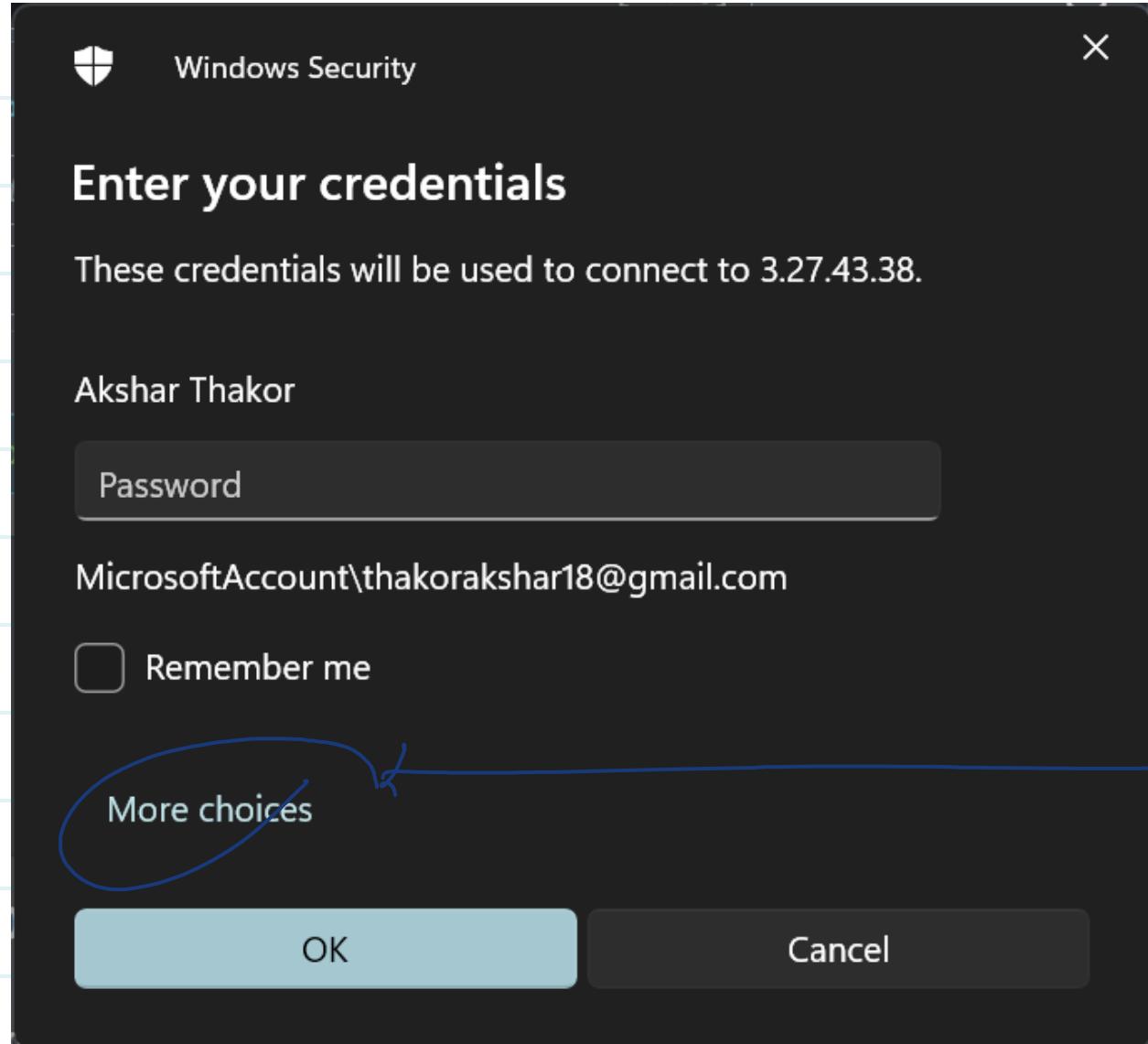
got password

Save username
and password in a notepad file



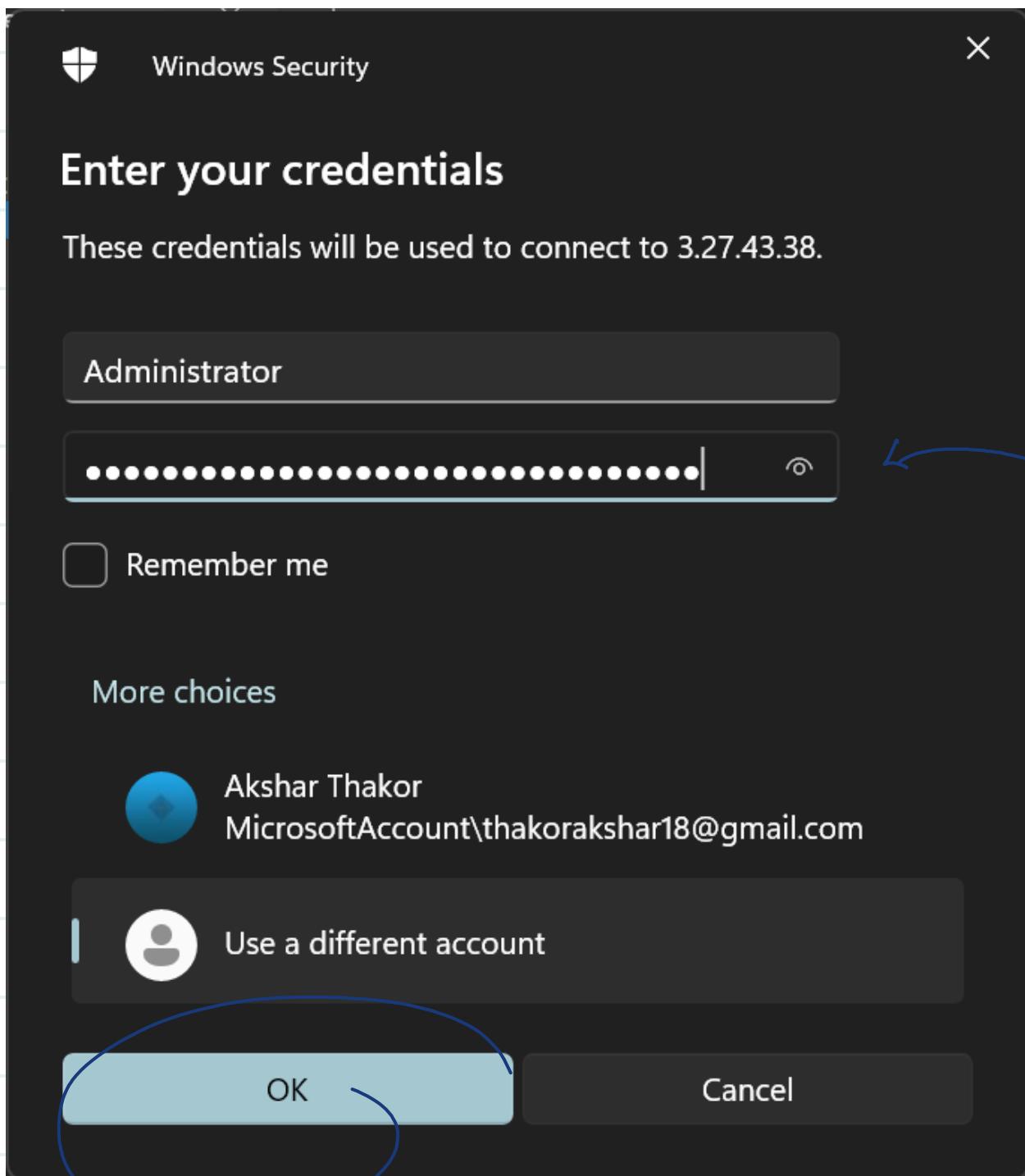
then
do
connect

We can get IP address from EC2 portal and instances

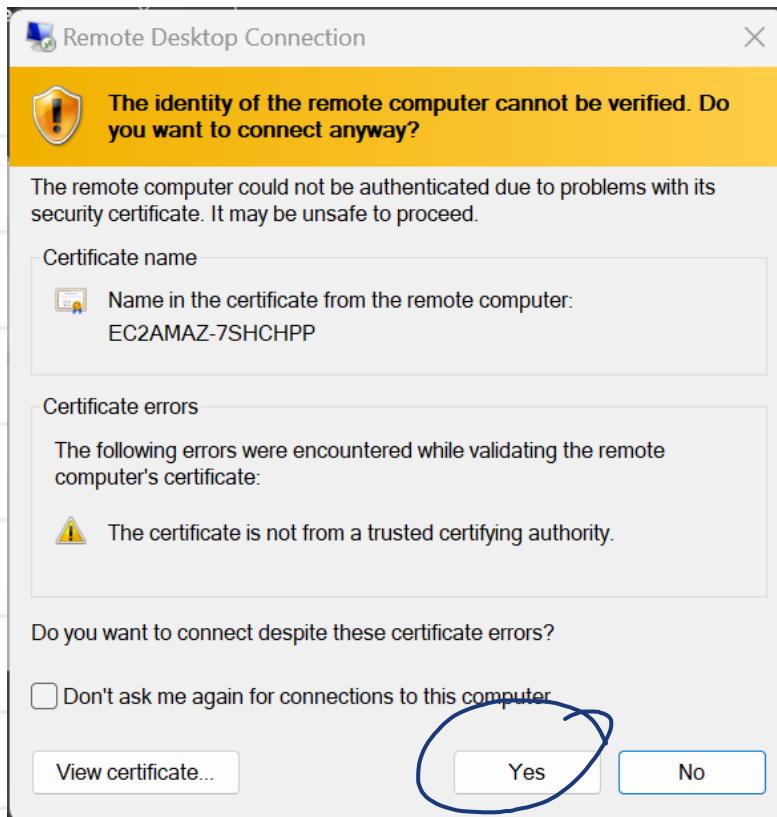


Enter those details here

then do differenfuser and enter Username and Password we setup earlier and saved in a file



press OK



↳ This may appear

Do you want to connect despite these certificate errors?

Don't ask me again for connections to this computer

[View certificate...](#)

Yes

No

do yes

↳ Running instance accessed through local PC running on AWS in Sydney



Next task

creating a web application running on
 our above created instance

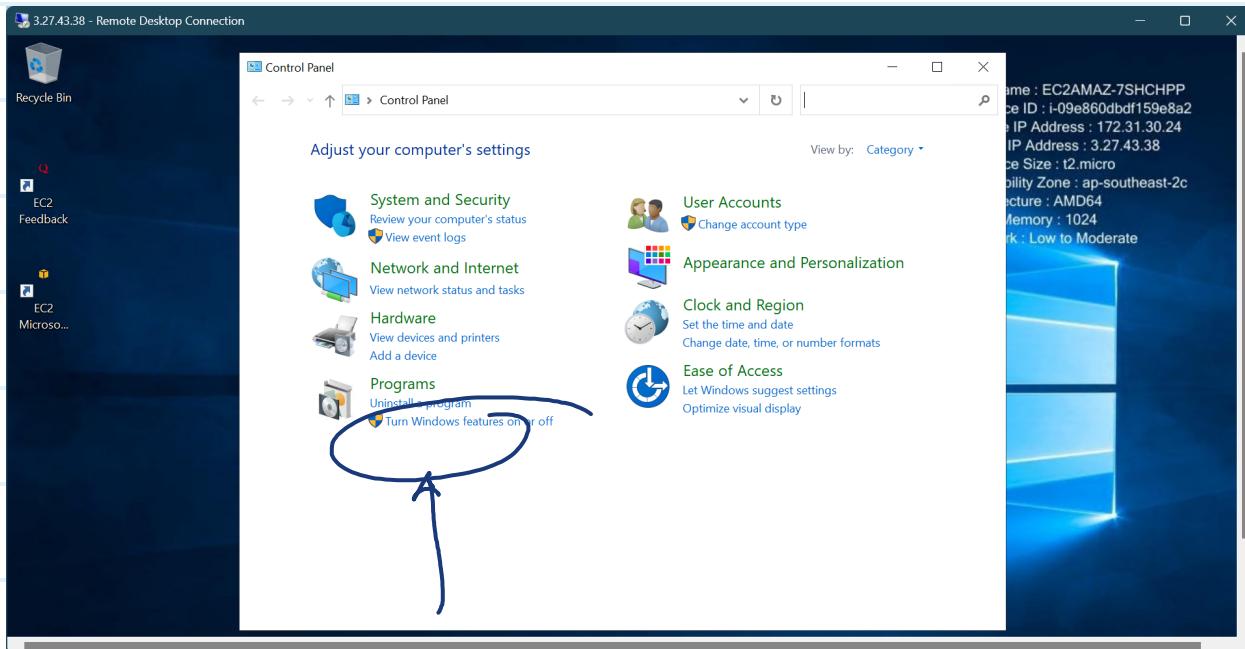
HTTP 80

HTTPS 443

- We will create IIS (Internet Information Service) for the webserver

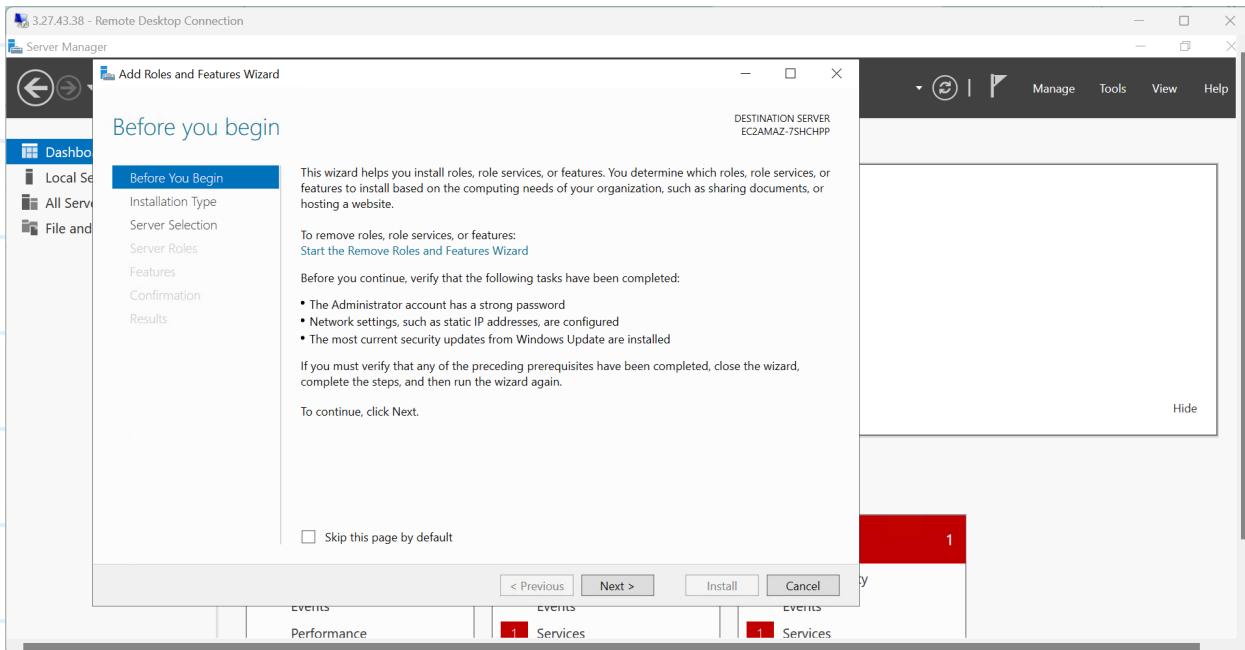
How to enable this service and create webserver

Now will operate inside instance
go to control panel

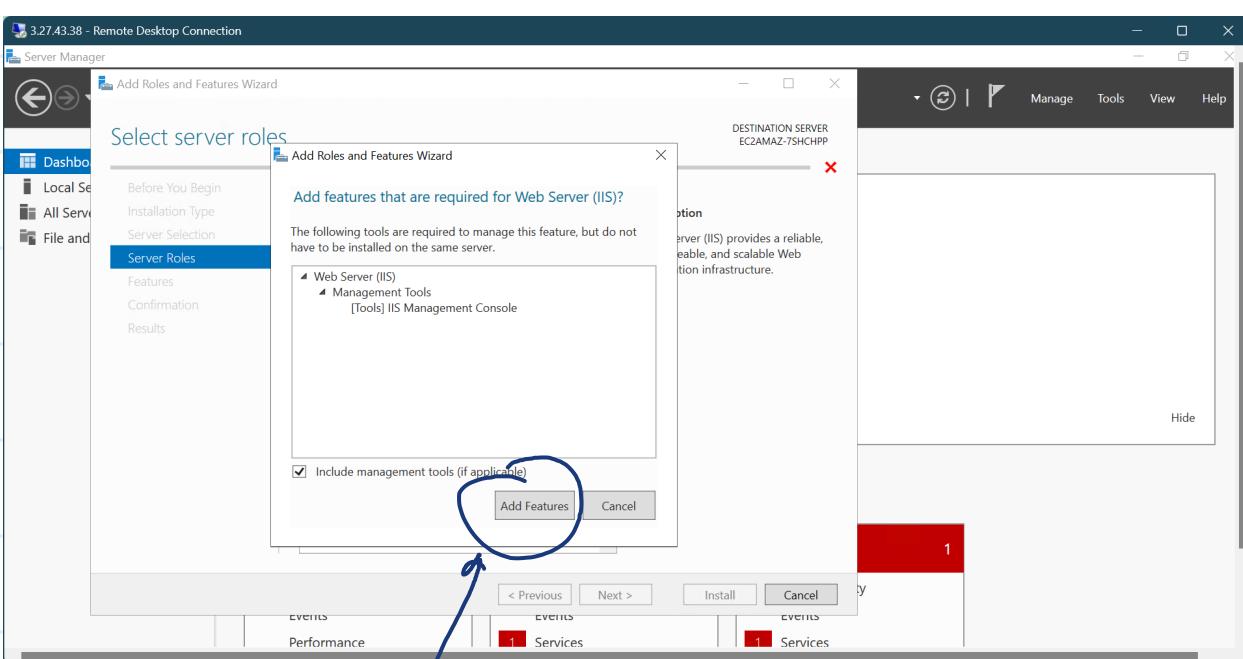
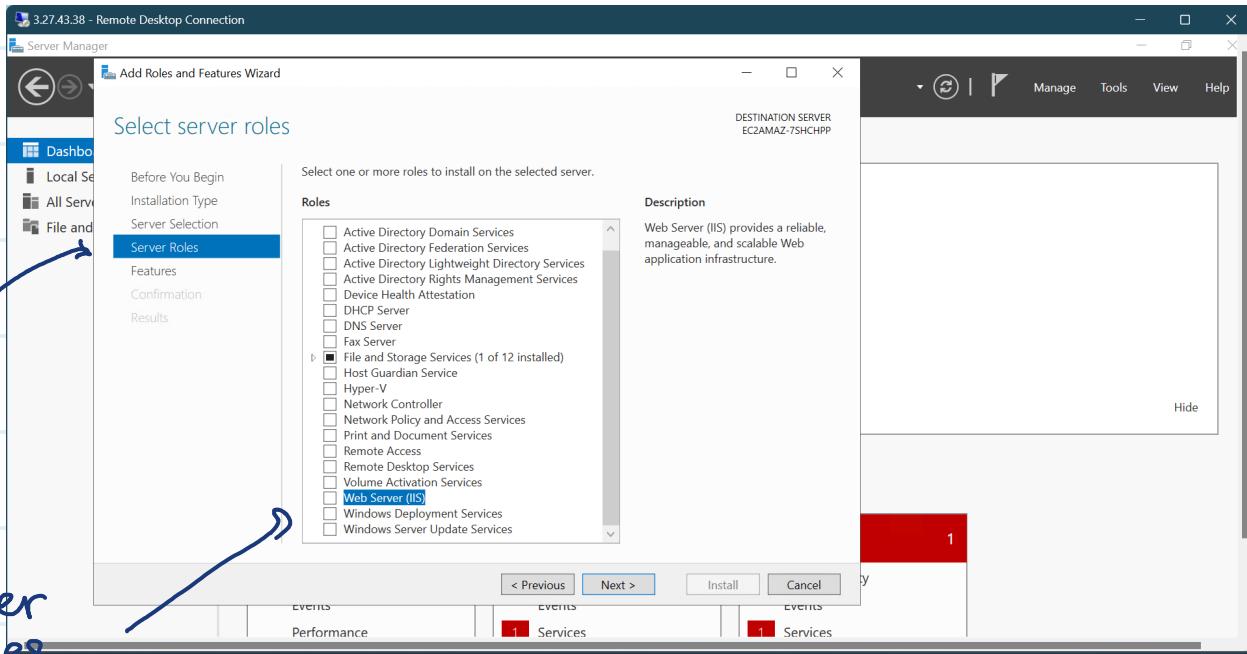


click this Turn windows feature... .

Wait for sometime for following to appear



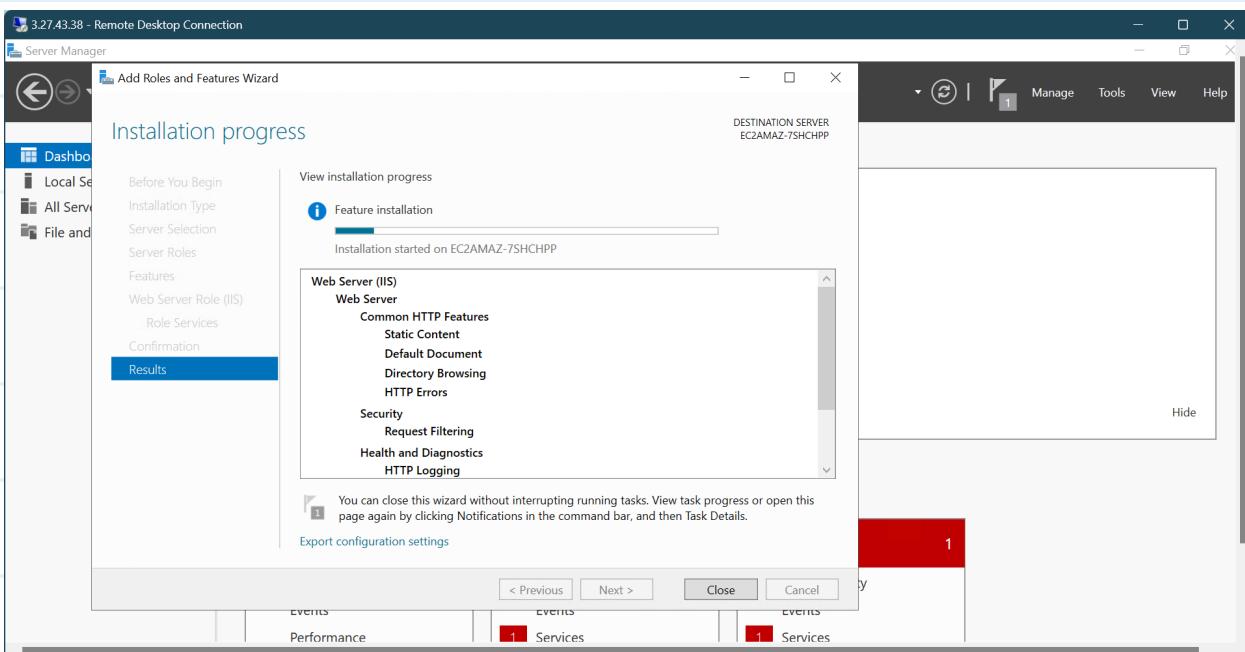
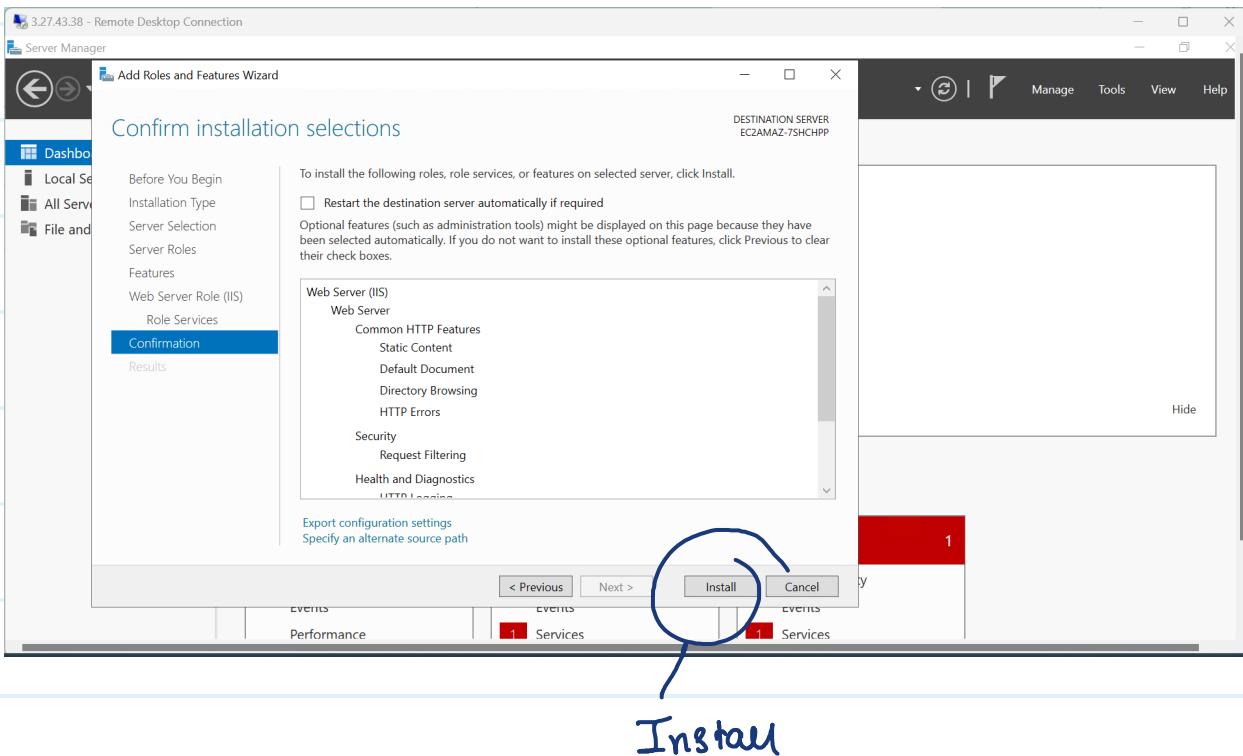
Do next → next → next till



then again do next → next → next

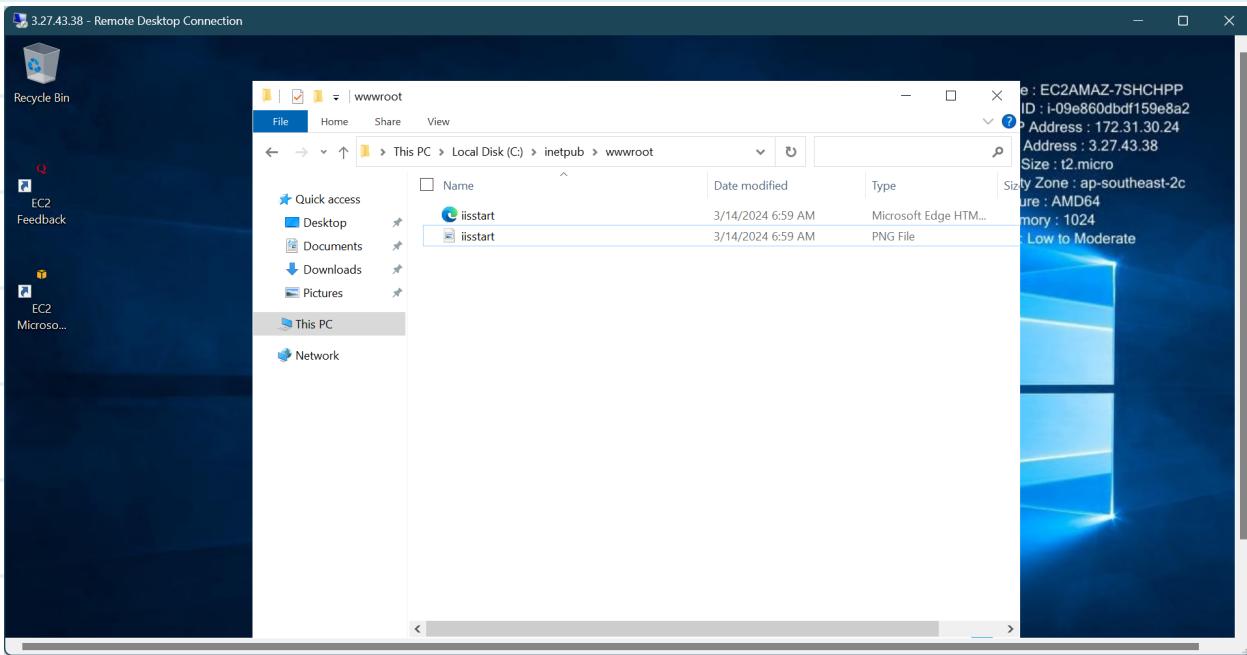
fill

Following appears



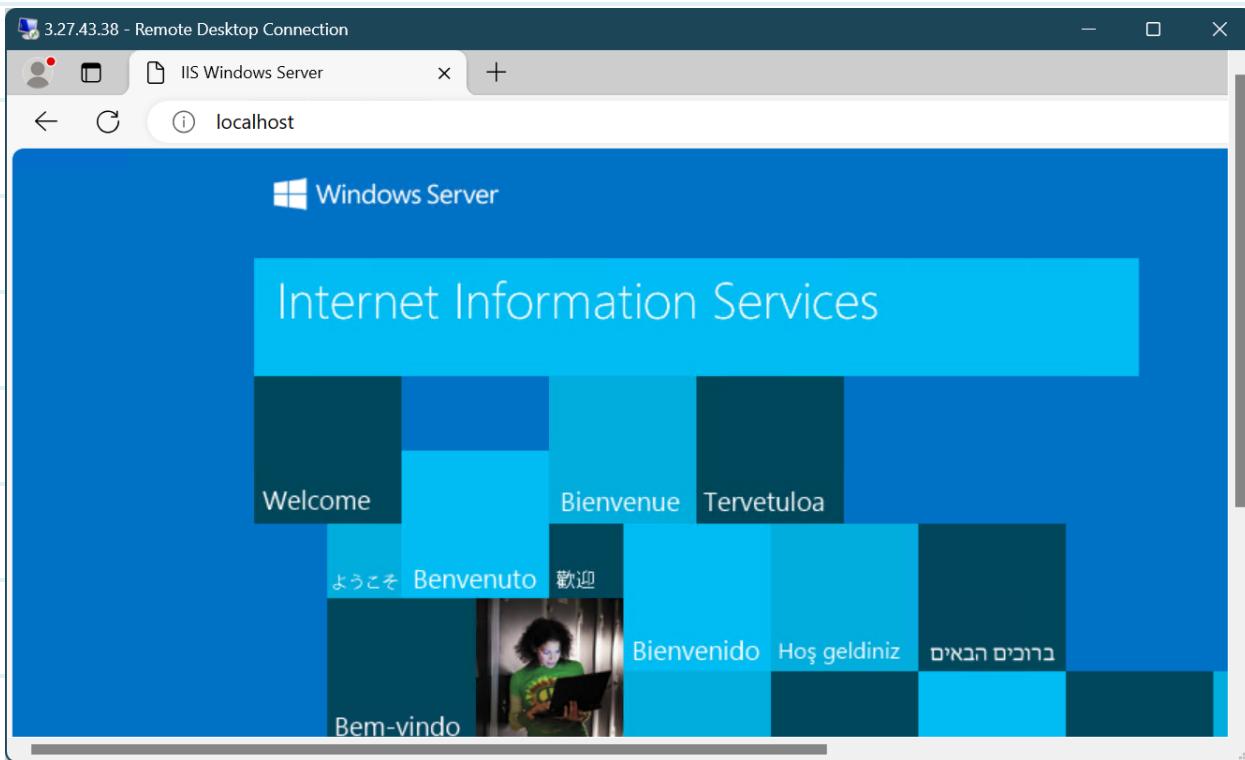
After installation close all windows
and goto filemanager

in root disk and into inetpub
and in that directory there will be
wwwroot directory.



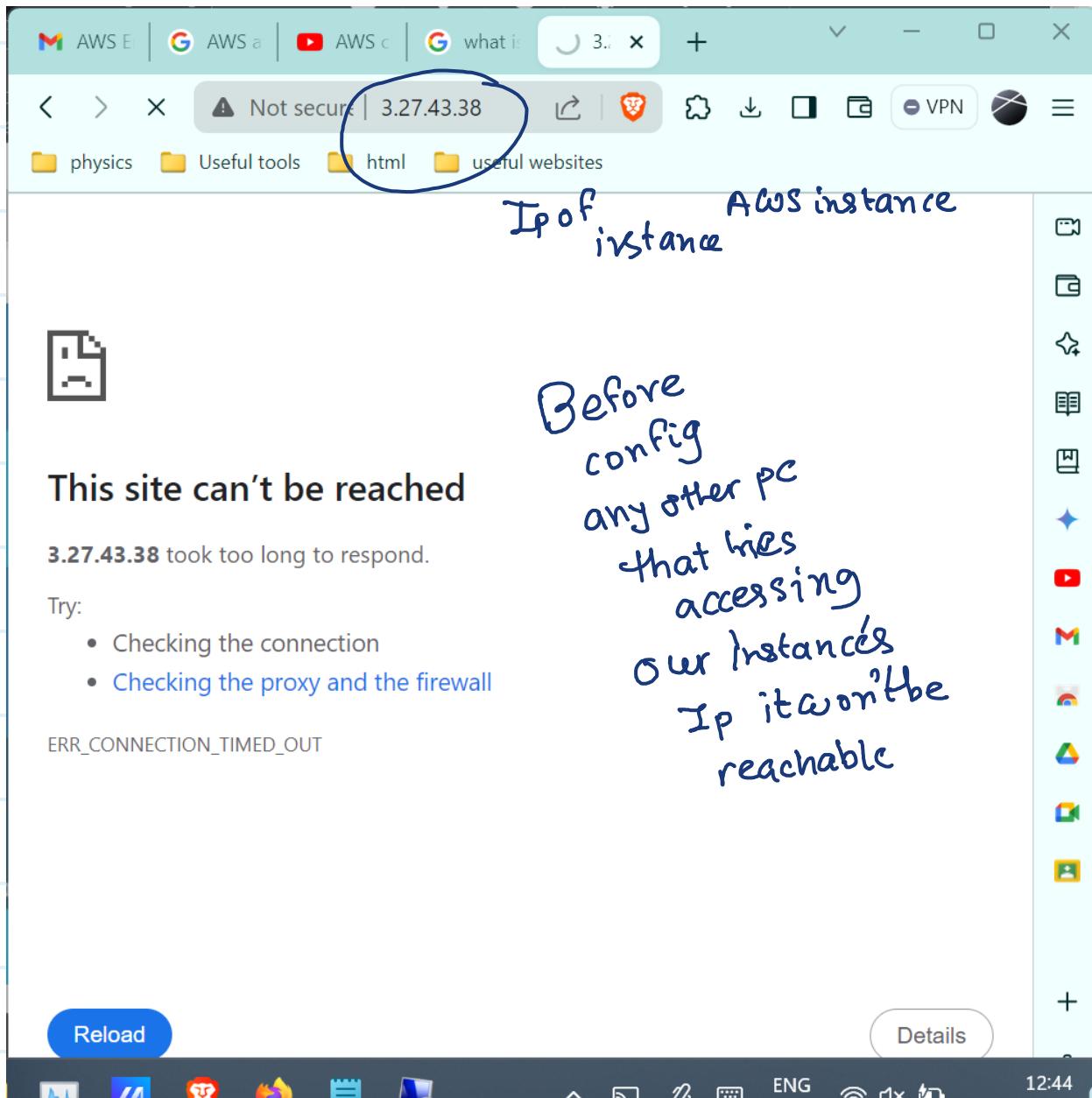
Now we can access this server locally (^{inside} instance)
But to access this server from any pc even
our admin pc that we are connected to instance
through,
we need to do some config

To check access to server on ^{instance,} locally type localhost
on browser of AMI itself



We can display our intended content through this server by deleting the existing files in C:\wwwroot directory and making a sample html document.

Now Try and access this server on instance through our own PC (PC through which we have remote access to the instances)

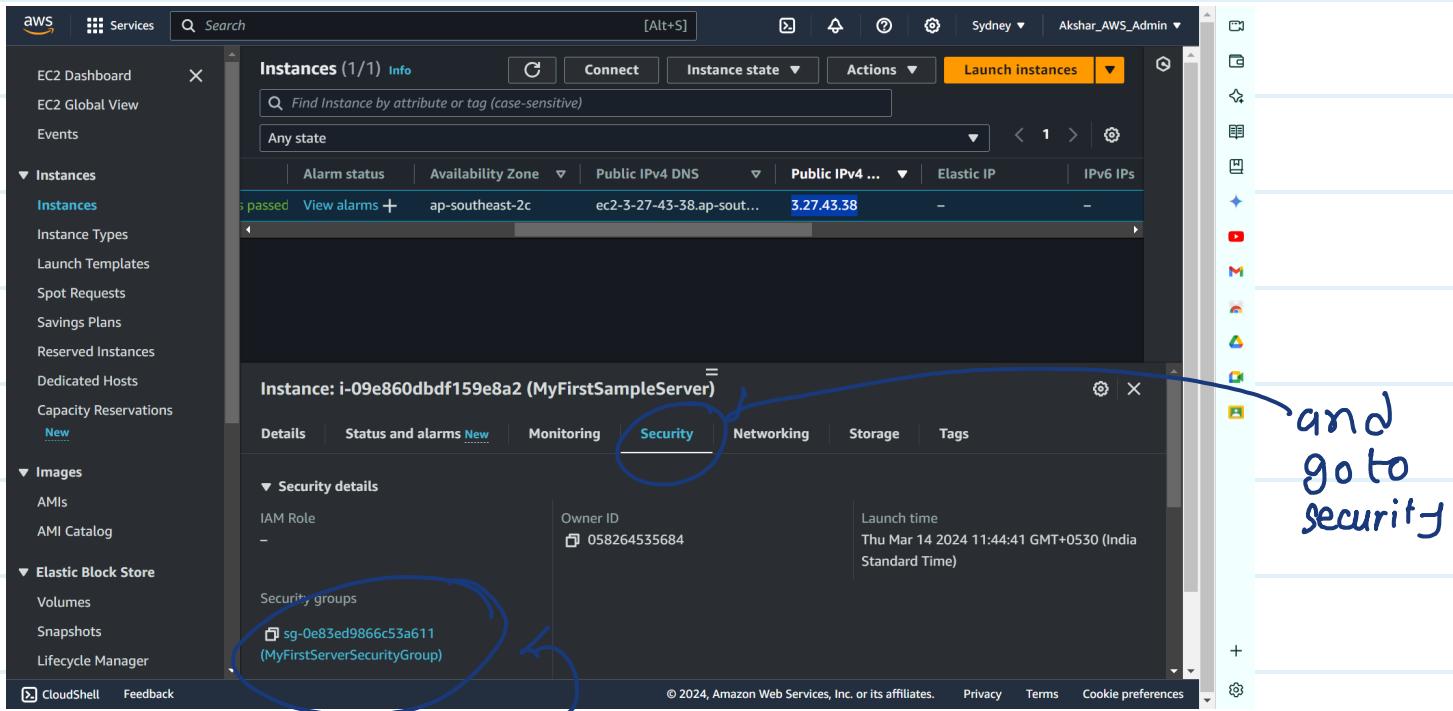


↑
this is screen of
our own pc

→ how to enable such access?

Basically we will allow port 80 and 443 (HTTPS) to listen to requests on those ports.

To reconfigure port go to EC2 dashboard



then click on
this
security group

Details

Security group name MyFirstServerSecurityGroup	Security group ID sg-0e83ed9866c53a611	Description launch-wizard-1 created 2024-03-14T05:55:42.619Z for my web server	VPC ID vpc-0b5d1ccbf592afb1
Owner 058264535684	Inbound rules count 1 Permission entry	Outbound rules count 1 Permission entry	

Inbound rules Outbound rules Tags

Inbound rules (1)

Protocol	Port range	Source	Description
TCP	3389	0.0.0.0/0	-

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Edit
inbound
rules

Inbound Rules (for incoming traffic requests)

EC2 > Security Groups > sg-0e83ed9866c53a611 - MyFirstServerSecurityGroup > Edit inbound rules

Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-007e8e59758757d02	RDP	TCP	3389	C... <input type="button" value="Delete"/>	<input type="text" value="0.0.0.0/0"/> <input type="button" value="X"/>

Add rule

⚠ Rule with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Cancel Preview changes Save rules

click on
Add rule (part of machine OS not AWS)

Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-007e8e59758757d02	RDP	TCP	3389	Cu... ▾	Info
-	HTTP	TCP	80	A... ▾	Info

Add rule

Select

HTTP

Select

anywhere IPV4

Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

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Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-007e8e59758757d02	RDP	TCP	3389	Cu... ▾	Info
-	HTTP	TCP	80	A... ▾	Info

Add rule

Select

anywhere IPV4

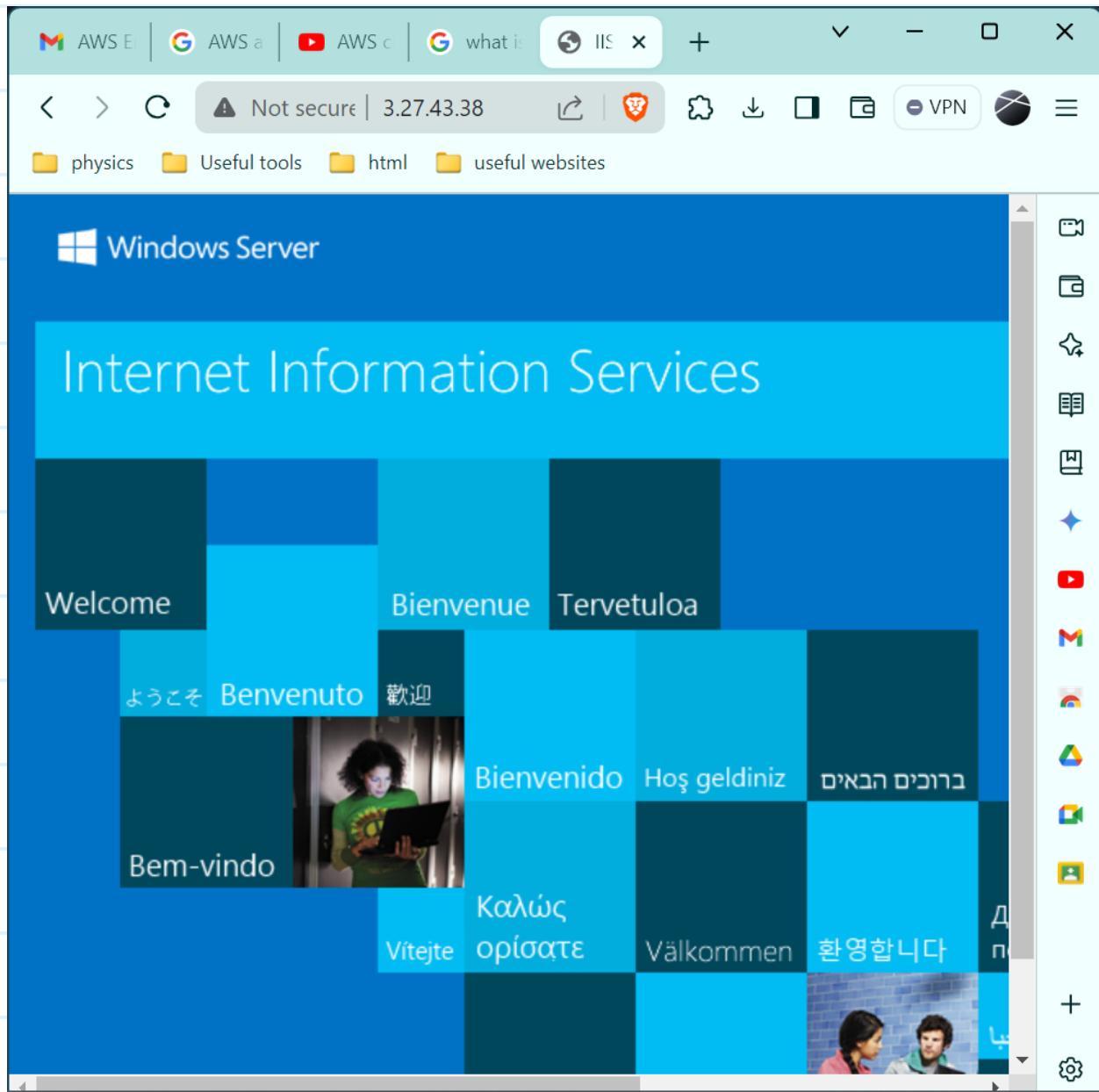
Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Cancel **Preview changes** **Save rules**

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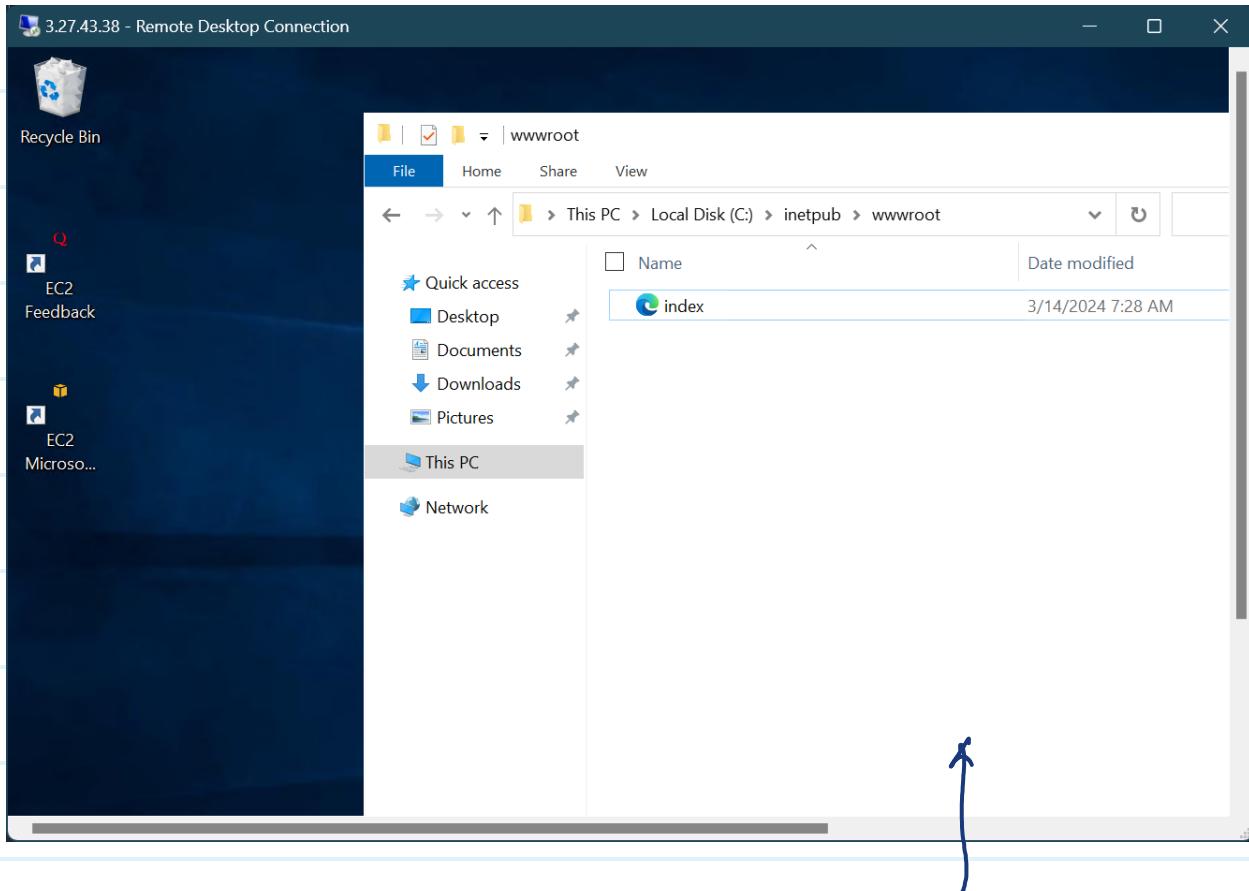
Save rules

Go to your local pc's browser and enter instance's IP address and try again.



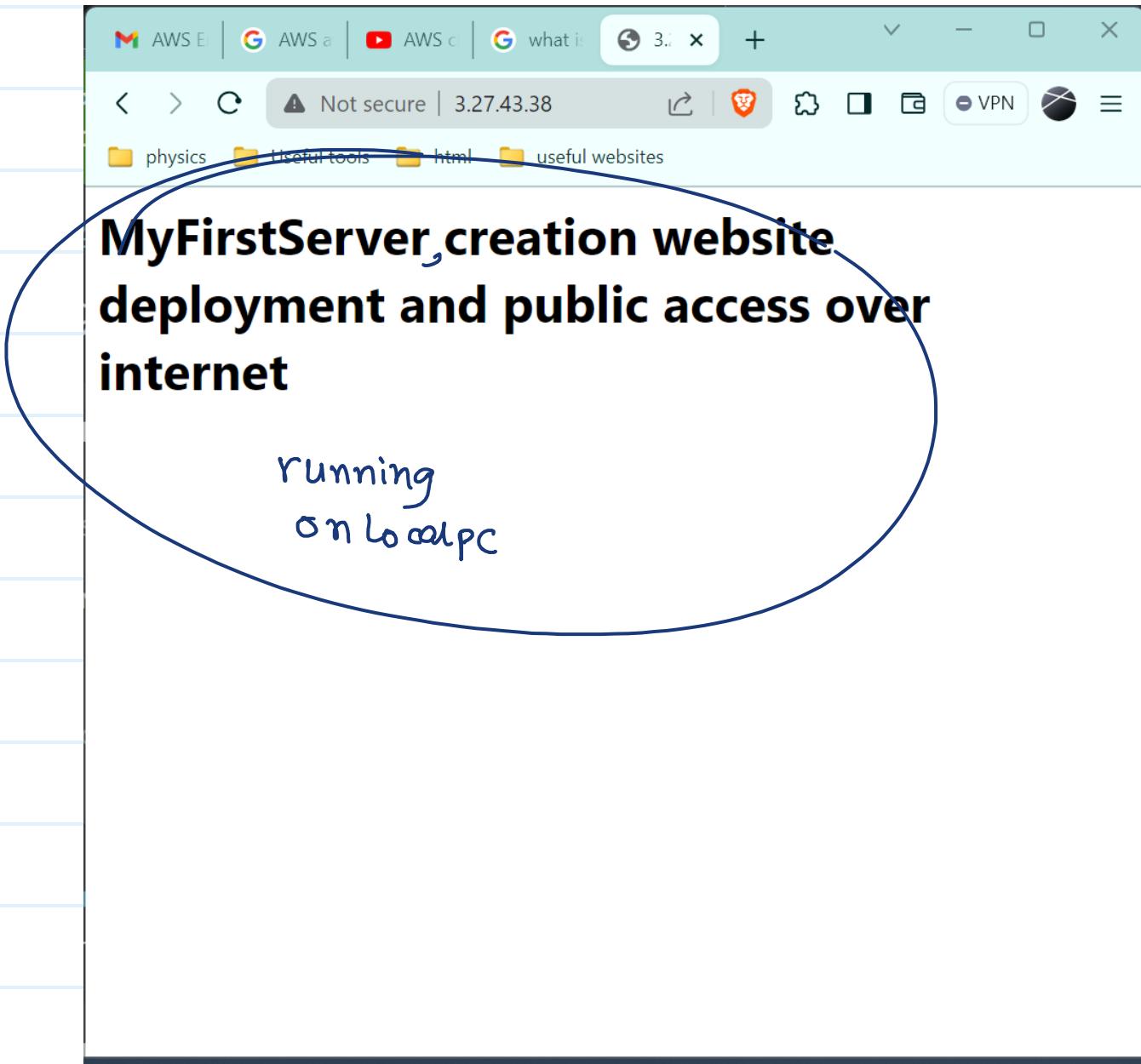
↑
Now your remote pc's instances's server accessible through any PC.

To host a website, go remote pc access and add your website file to C:\wwwroot\ directory that was discussed before and delete preexisting file.



deleted
previous files
created a
sample index.html

Now from our local PC browser refresh instance's IP address webpage and see result.



To get any website running put all req files the same way on ^{instance} server instance and do the same

After completion of task we will terminate our instance.

go to AWS EC2 dashboard and instances

The screenshot shows the AWS EC2 Dashboard with two instances listed. The top instance, 'MyFirstSample...', is selected. A blue circle highlights the 'Actions' dropdown menu above the instance table, and another blue circle highlights the 'Terminate instance' option within that menu. Handwritten text on the right side of the screen provides instructions: 'select the instance' points to the instance list, and 'terminate instance' points to the highlighted 'Terminate instance' option.

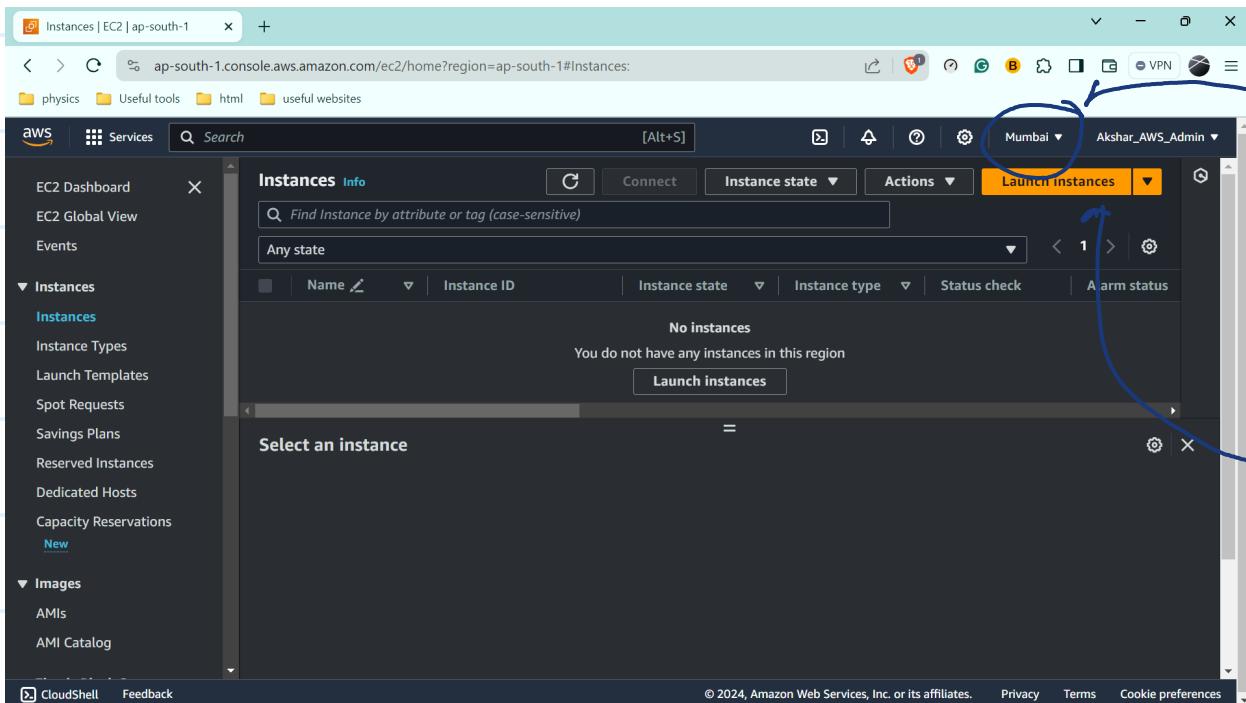
Name	Instance ID	Instance state	Instance type
MyFirstSample...	i-09e860dbdf159e8a2	Running	t2.micro

Name	Instance ID	Instance state	Instance type
MyFirstSample...	i-09e860dbdf159e8a2	Running	t2.micro

The screenshot shows the AWS EC2 Instances page. The left sidebar includes options like EC2 Dashboard, EC2 Global View, Events, Instances (selected), Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations (New), Images (AMIs, AMI Catalog), and Elastic Block Store (Volumes, Snapshots, Lifecycle Manager). The main content area displays a table titled 'Instances (1) Info' with one row. The row contains the following columns: Name (MyFirstSample...), Instance ID (i-09e860dbdf159e8a2), Instance state (Terminated, circled in blue with a handwritten note 'Terminated'), Instance type (t2.micro), Status check (-), and Alarm status (View alarms +). A blue arrow points from the handwritten note to the 'Terminated' state. The bottom of the page features a 'Select an instance' dropdown, footer links (CloudShell, Feedback, © 2024, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, Cookie preferences), and a status bar.

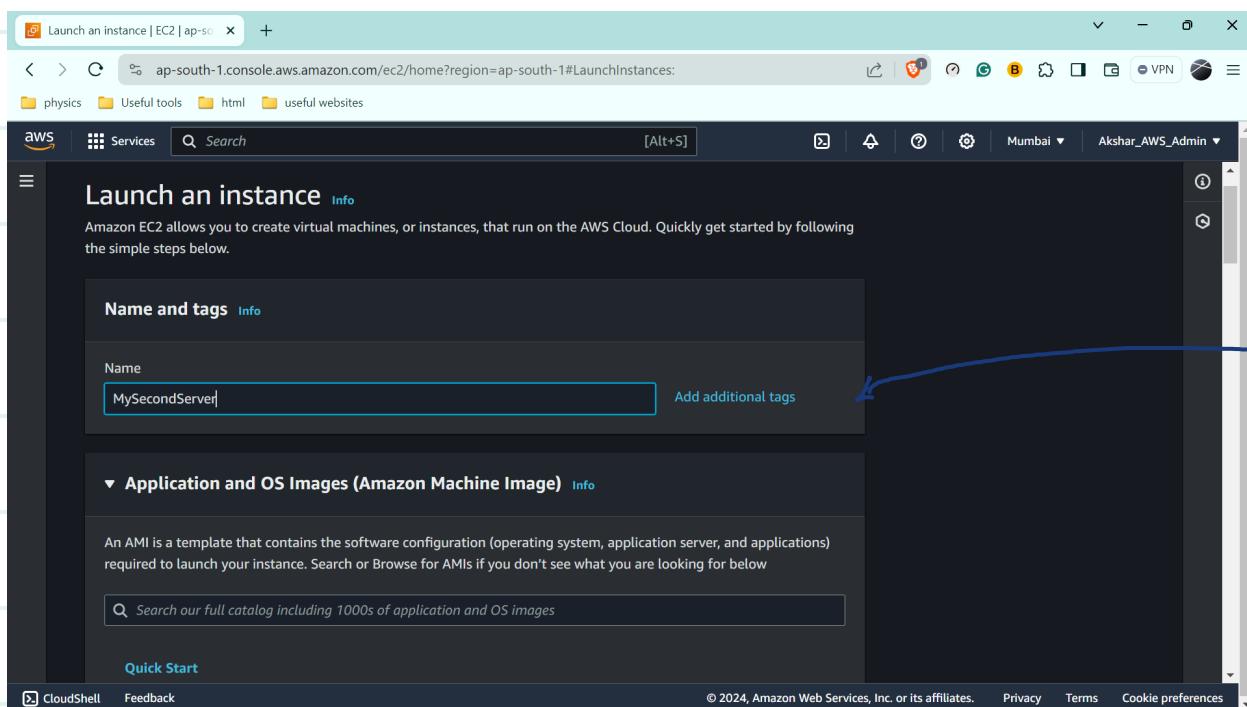
Afternoon session

EC2 instance with ubuntu Linux OS



This
time
we'll
select
mumbai

Then do
launch
instances



Name
your
instance

Select OS

Launch an instance | EC2 | ap-south-1

required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

Quick Start

Amazon Linux macOS Ubuntu Windows Red Hat SUSE Linux

Ubuntu Server 22.04 LTS (HVM), SSD Volume Type
ami-03bb6d83c60fc5f7c (64-bit (x86)) / ami-041e007af1d2fa24dd (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

Description
Canonical, Ubuntu, 22.04 LTS, amd64 jammy image build on 2024-02-07

Architecture: 64-bit (x86) AMI ID: ami-03bb6d83c60fc5f7c Verified provider

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t2 micro free tier

Launch an instance | EC2 | ap-south-1

ami-03bb6d83c60fc5f7c Verified provider

Instance type Info | Get advice

Instance type: t2.micro
Family: t2 1 vCPU 1 GiB Memory Current generation: true
Free tier eligible
On-Demand Linux base pricing: 0.0124 USD per Hour
On-Demand Windows base pricing: 0.017 USD per Hour
On-Demand RHEL base pricing: 0.0724 USD per Hour
On-Demand SUSE base pricing: 0.0124 USD per Hour

All generations Compare instance types

Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

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Create new key pair

Launch an instance | EC2 | ap-south-1

ami-03bb6d83c60fc5f7c Verified provider

Key pair (login) Info

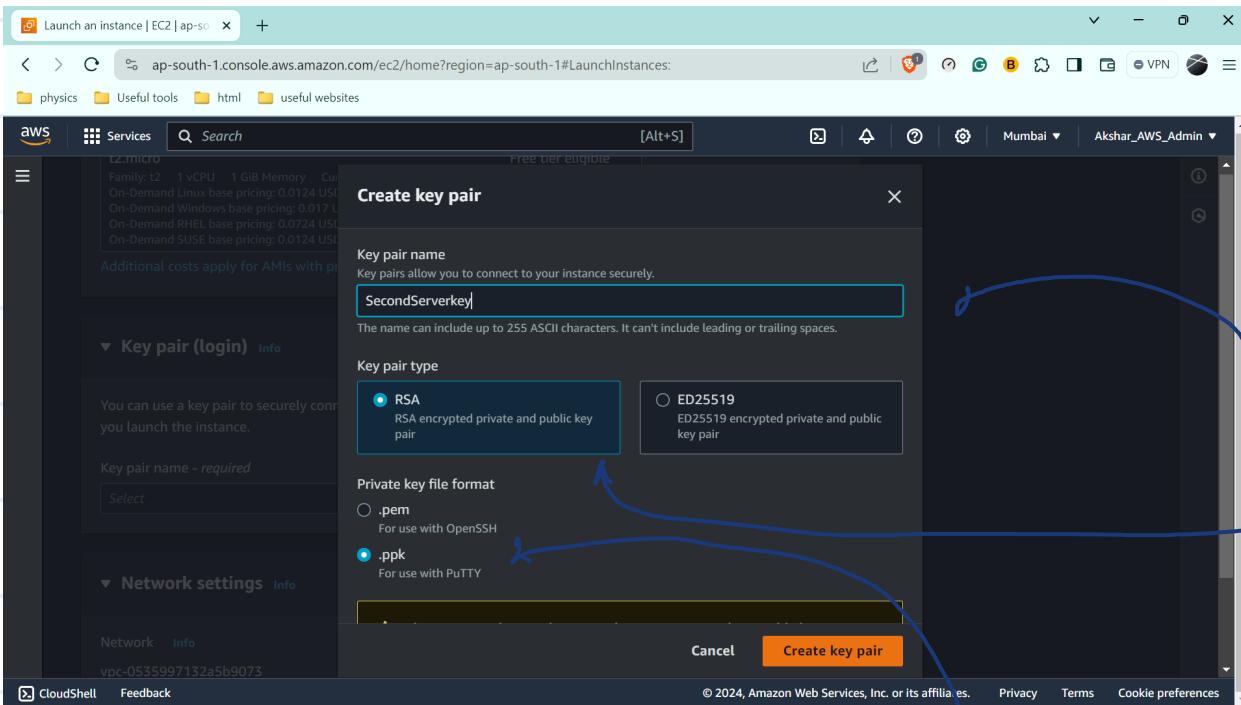
You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required
Select Create new key pair

Network settings Info

Network: vpc-0535997152a5b9073

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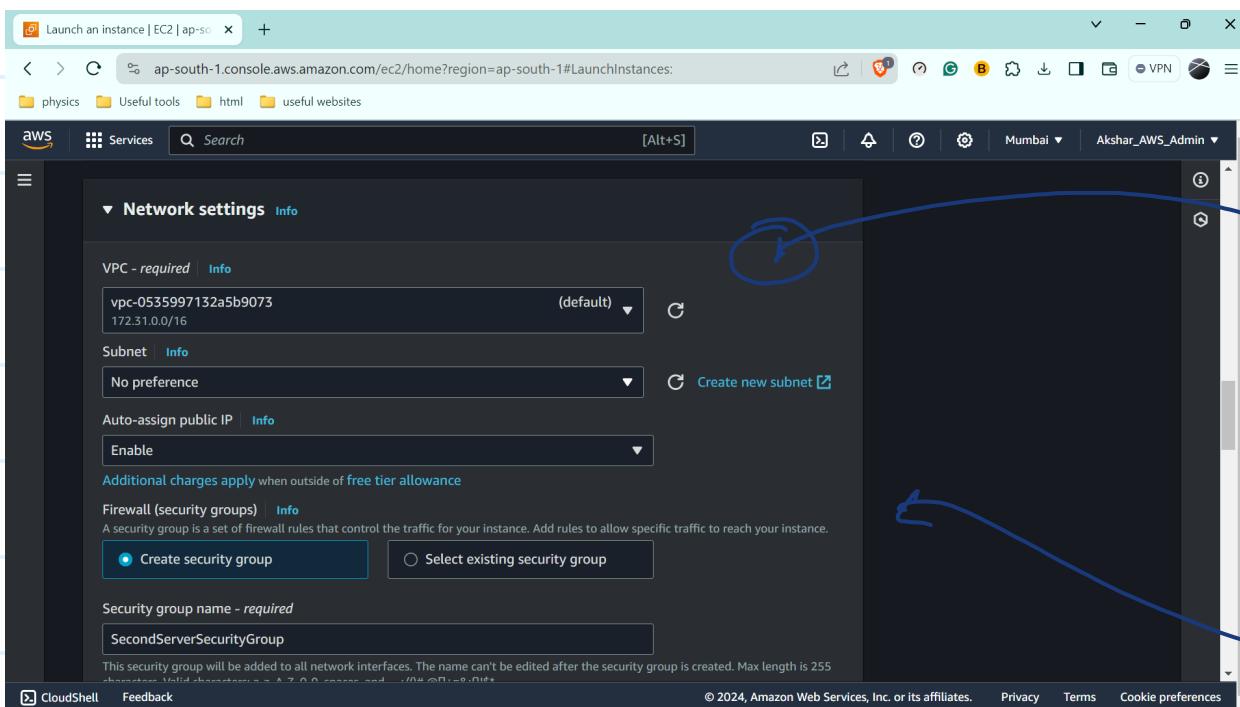


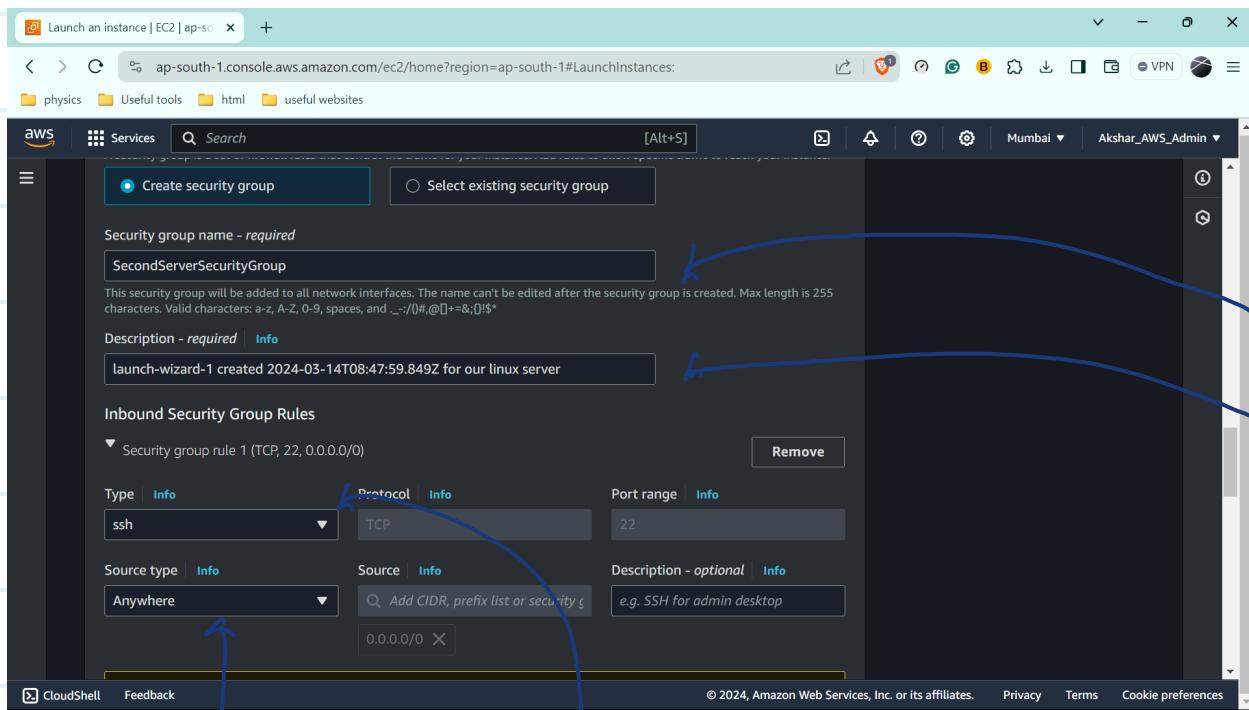
key pair name

encryption
Algo

select ppk
this time

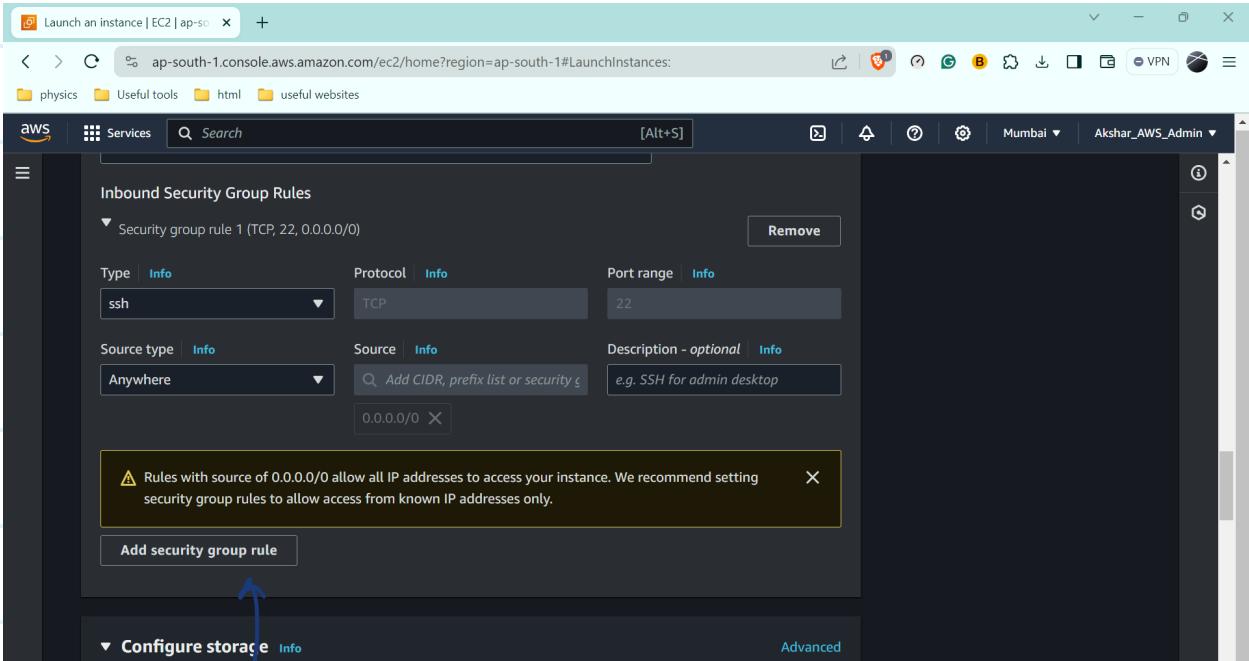
and do
create





Name it
Description

anywhere
select ssh



add security grooprule.

Launch an instance | EC2 | ap-south-1

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances:

aws Services Search [Alt+S] Mumbai Akshar_AWS_Admin

Configure storage Info Advanced

1x 1 GiB gp2 Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance

Click refresh to view backup information

0 x File systems Edit

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make this field 50GB

Scroll down read summary then do launch instance

Launch an instance | EC2 | ap-south-1

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances:

aws Services Search [Alt+S] Mumbai Akshar_AWS_Admin

EC2 > Instances > Launch an instance

Success Successfully initiated launch of instance (i-06f43137acb85c0e9)

Launch log

Next Steps

What would you like to do next with this instance, for example "create alarm" or "create backup"

1 2 3 4 5 6

Create billing and free tier usage alerts To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds.

Connect to your instance Once your instance is running, log into it from your local computer. Connect to instance

Connect an RDS database Configure the connection between an EC2 instance and a database to allow traffic flow between them.

Create EBS snapshot policy Create a policy that automates the creation, retention, and deletion of EBS snapshots

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goto instances

Instances | EC2 | ap-south-1

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#Instances:

physics Useful tools html useful websites

aws Services Search [Alt+S]

EC2 Dashboard EC2 Global View Events Instances Instances Instance Types Launch Templates Spot Requests Savings Plans Reserved Instances Dedicated Hosts Capacity Reservations New Images AMIs AMI Catalog

Instances (1) Info Connect Instance state Actions Launch instances

Find Instance by attribute or tag (case-sensitive)

Any state

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
MySecondServer	i-06f43137acb85c0e9	Running	t2.micro	Initializing	View alarms

Select an instance

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created
instance

for windows install gitbash

After installing open gitbash and change
directory to your keypair file directory.

and run following commands.

```
MINGW64:/c/Users/thako/OneDrive/Desktop
thako@ZENPC MINGW64 ~
$ cd OneDrive/Desktop

thako@ZENPC MINGW64 ~/OneDrive/Desktop
$ ls
MyAWSserverAMI_remote_access_credentials.txt
MyFirstSampleServerKey.pem
MyFirstSampleServer_file.rdp
'Screenshot 2024-03-14 094555.jpg'
'Screenshot 2024-03-14 094800.jpg'
'Screenshot 2024-03-14 094856.jpg'
'Screenshot 2024-03-14 094928.jpg'
SecondServerkey.ppk
desktop.ini

thako@ZENPC MINGW64 ~/OneDrive/Desktop
$ chmod 400 SecondServerkey.ppk

thako@ZENPC MINGW64 ~/OneDrive/Desktop
$ ssh -i "SecondServerkey.ppk" ubuntu@
```

Username

type your EC2 instance IP here

↓ Because our AMI is ubuntu default name is ubuntu like Administrator in windows instance ↑ from EC2 dashboard of AWS

```
MINGW64:/c/Users/thako/OneDrive/Desktop
thako@ZENPC MINGW64 ~
$ cd OneDrive/Desktop

thako@ZENPC MINGW64 ~/OneDrive/Desktop
$ ls
MyAWSserverAMI_remote_access_credentials.txt
MyFirstSampleServerKey.pem
MyFirstSampleServer_file.rdp
'Screenshot 2024-03-14 094555.jpg'
'Screenshot 2024-03-14 094800.jpg'
'Screenshot 2024-03-14 094856.jpg'
'Screenshot 2024-03-14 094928.jpg'
SecondServerkey.ppk
desktop.ini

thako@ZENPC MINGW64 ~/OneDrive/Desktop
$ chmod 400 SecondServerkey.ppk

thako@ZENPC MINGW64 ~/OneDrive/Desktop
$ ssh -i "SecondServerkey.ppk" ubuntu@65.2.151.83
The authenticity of host '65.2.151.83 (65.2.151.83)' can't be established.
ED25519 key fingerprint is SHA256:7dq0A4929jGTpclj5KW4++dMi9VC1bNIzLpPPMeG+nw.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? |
```

there was an error due to keypair being in ppk format requiring additional tool
Hence from EC2 dashboard go to

[Ignore this if already pem key pair gen]

AWS Services Search [Alt+S] Mumbai Akshar_AWS_Admin

Instances (1/1) Info Connect Instance state Actions Launch instances

Find Instance by attribute or tag (case-sensitive)

Any state

Name Instance ID Instance state Instance type Status check Alarm status

MySecondServer i-06f43137acb85c0e9 Running t2.micro 2/2 checks passed View alarms

Instance: i-06f43137acb85c0e9 (MySecondServer)

Details Status and alarms New Monitoring Security Networking Storage Tags

Instance summary Info

Instance ID i-06f43137acb85c0e9 (MySecondServer)	Public IPv4 address 65.2.151.83 [open address]	Private IPv4 addresses 172.31.38.161
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-65-2-151-83.ap-south-1.compute.amazonaws.com [open address]
Hostname type IP name in 172.31.38.161.ap-south-1	Private IP DNS name (IPv4 only) in 172.31.38.161.ap-south-1	

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Details swallows down to keypair click on it create new keypair file in pem format and repeat commands again

in git bash

and do yes in final confirmation successful

remote access will look like,

```
ubuntu@ip-172-31-5-86: ~
Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-5-86:~$ ~~~~
```

Once we have remote access

We will do following,

```
root@ip-172-31-5-86: /home/ubuntu
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-5-86:~$ sudo su
root@ip-172-31-5-86:/home/ubuntu#
root@ip-172-31-5-86:/home/ubuntu#
root@ip-172-31-5-86:/home/ubuntu#
root@ip-172-31-5-86:/home/ubuntu#
root@ip-172-31-5-86:/home/ubuntu# apt update
```

to get into
root directory and access

↑
run this to update system
as
root user

How to check if webserver is running or not?

apache2 is server soft

```
root@ip-172-31-5-86:/home/ubuntu
root@ip-172-31-5-86:/home/ubuntu# systemctl status apache2
Unit apache2.service could not be found.
root@ip-172-31-5-86:/home/ubuntu# |
```

Available
just as
IIS
in
windows

because Apache 2 does not come preinstalled to install do following

```
root@ip-172-31-5-86:/home/ubuntu
root@ip-172-31-5-86:/home/ubuntu# systemctl status apache2
Unit apache2.service could not be found.
root@ip-172-31-5-86:/home/ubuntu# apt install apache2
```

And check again.

```
root@ip-172-31-5-86:/home/ubuntu
No services need to be restarted.
No containers need to be restarted.
No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-5-86:/home/ubuntu# systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor prese>
   Active: active (running) since Thu 2024-03-14 09:33:15 UTC; 15s ago
     Docs: https://httpd.apache.org/docs/2.4/
         Main PID: 2298 (apache2)
            Tasks: 55 (limit: 1121)
           Memory: 4.9M
              CPU: 31ms
            CGroup: /system.slice/apache2.service
                      ├─2298 /usr/sbin/apache2 -k start
                      ├─2300 /usr/sbin/apache2 -k start
                      ├─2301 /usr/sbin/apache2 -k start

Mar 14 09:33:15 ip-172-31-5-86 systemd[1]: Starting The Apache HTTP Server...
Mar 14 09:33:15 ip-172-31-5-86 systemd[1]: Started The Apache HTTP Server.
[lines 1-15/15 (END)]
```



running server press ⌘ to get back to original

CLI

```
root@ip-172-31-5-86:/home/ubuntu
root@ip-172-31-5-86:/home/ubuntu# curl ifconfig.me
52.66.235.18root@ip-172-31-5-86:/home/ubuntu#
root@ip-172-31-5-86:/home/ubuntu#
```

public
IP



Enter this public IP in local pc's browser tab site
unreachable will come to access this IP over internet
publically goto AWS EC2 instances and do following

in EC2 dashboard select instance go to security

click on security group
add new rule
HTTP anywhere
IPV4

Edit inbound rules Info

Inbound rules Info

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-01a0f382ed640955f	SSH	TCP	22	Cu... <input type="button" value="Q"/> <input type="text" value="0.0.0.0/0"/> X	<input type="button" value="Delete"/>
-	HTTP	TCP	80	A... <input type="button" value="Q"/> <input type="text" value="0.0.0.0/0"/> X	<input type="button" value="Delete"/>

Add rule

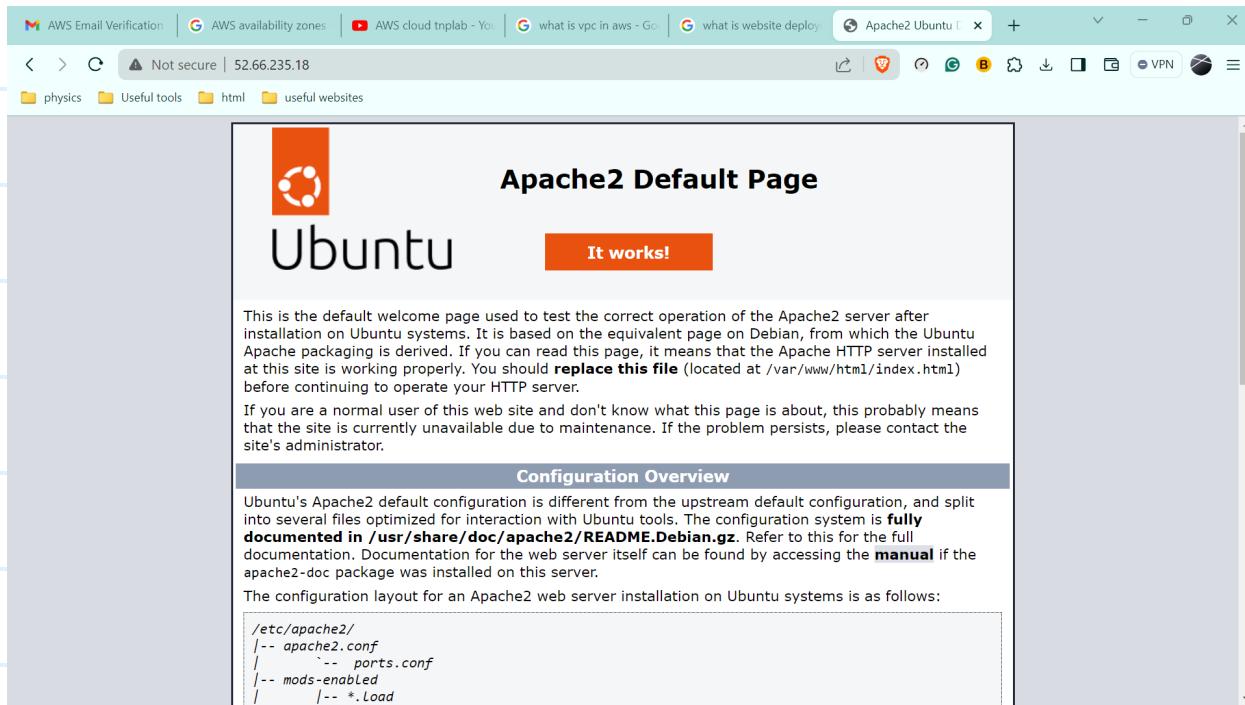
Inbound rules Info

Cancel Preview changes Save rules

Anywhere
IPV4

q
saverule

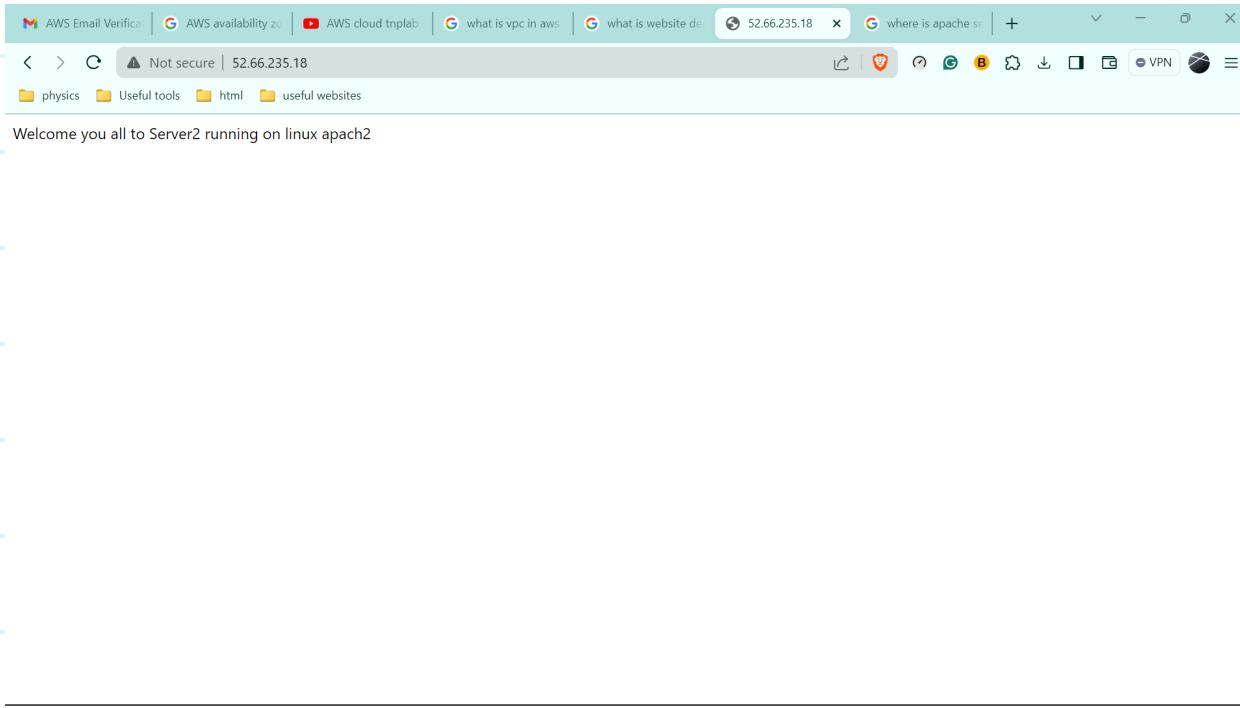
And then refresh browser tab with instance's IP address
You will see,



Once this is done we need to find 'wwwroot' directory here as well. For that,

```
root@ip-172-31-5-86:~$ sudo su
root@ip-172-31-5-86:/home/ubuntu# ls
root@ip-172-31-5-86:/home/ubuntu# ls -a
. .. .bash_logout .bashrc .cache .profile .ssh .sudo_as_admin_successful
root@ip-172-31-5-86:/home/ubuntu# cd var/www
bash: cd: var/www: No such file or directory
root@ip-172-31-5-86:/home/ubuntu# cd var/www/
bash: cd: var/www/: No such file or directory
root@ip-172-31-5-86:/home/ubuntu# cd /var/www/
root@ip-172-31-5-86:/var/www# cd html
root@ip-172-31-5-86:/var/www/html# echo "Welcome you all to Server2 running on Linux apach2" > index.html
root@ip-172-31-5-86:/var/www/html# |
```

And refresh the browser tab on local pc.



So, whatever we did with windows we did without ubuntu linux server and access through SSH protocol.

just like this you can have your website's all files in the same folder and run your website the same way above.

Example,

download a ready-made website's resources (files) from the internet using 'wget and link'

it will be downloaded in zip format in
same location

to extract files from it we need to unzip
For that we install unzip package

apt install unzip

then run

unzip ____ .zip

and our sample website will be shown

(Task: Migrate Files to and fro remote pc
from local pc.

1) migrating files from local to Instance

for that we need to install winscp on
local pc

for mac there is SCP command

WinSCP 6.3 Download

WinSCP 6.3 is a major application update. New features and enhancements include:

- Single large file can be downloaded using multiple SFTP connections.
- Support for OpenSSH certificates for host verification.
- File hash can be used as criterion for synchronization.
- Improved behavior when duplicating and moving remote files.
- SSH core upgraded to PuTTY 0.80. That includes support for HMAC-SHA-512 and mitigation of "Terrapin" vulnerability.
- TLS/SSL core upgraded to OpenSSL 3.
- [List of all changes.](#)

[DOWNLOAD WINSCP 6.3.2 \(11 MB\)](#)  **50% OFF** [OTHER DOWNLOADS](#)

284,494 downloads since 2024-03-12 [What is this?](#)

After installing openit,

Session

File protocol: SFTP

Host name: Port number: 22

User name: Password:

Advanced...

Changed

11-01-2024 22:43:25
27-07-2023 16:57:29
17-08-2021 13:50:57
16-05-2021 15:57:08
10-05-2021 22:21:17
29-06-2023 18:43:48
18-08-2021 19:52:31
23-08-2021 23:58:48
14-02-2022 18:47:01
07-08-2021 23:43:08
19-01-2021 16:48:12
01-05-2022 16:35:37
23-10-2022 16:14:13
16-01-2024 22:08:36
08-06-2022 10:19:54
18-04-2022 14:45:53
06-08-2021 00:27:51
29-06-2023 22:29:05
25-01-2021 15:59:54
17-12-2021 16:53:25
24-06-2021 15:10:45
25-04-2023 11:42:19
14-03-2024 09:50:11

Left Mark File Commands Tabs Options Right Help

Documents – WinSCP

Documents – Documents New Tab

My documents Copy Edit Queue Transfer Settings Default

New Site Login Advanced... Tools Manage Close Help

Show Login dialog on startup and when the last session is closed

File folder 23-01-2021 13:59:54 File folder FHOME

File folder 17-12-2021 16:53:25 File folder GTA San Andreas User...

File folder 24-06-2021 15:16:15 File folder GUICET

File folder 25-04-2023 11:42:19 File folder Imagicaa

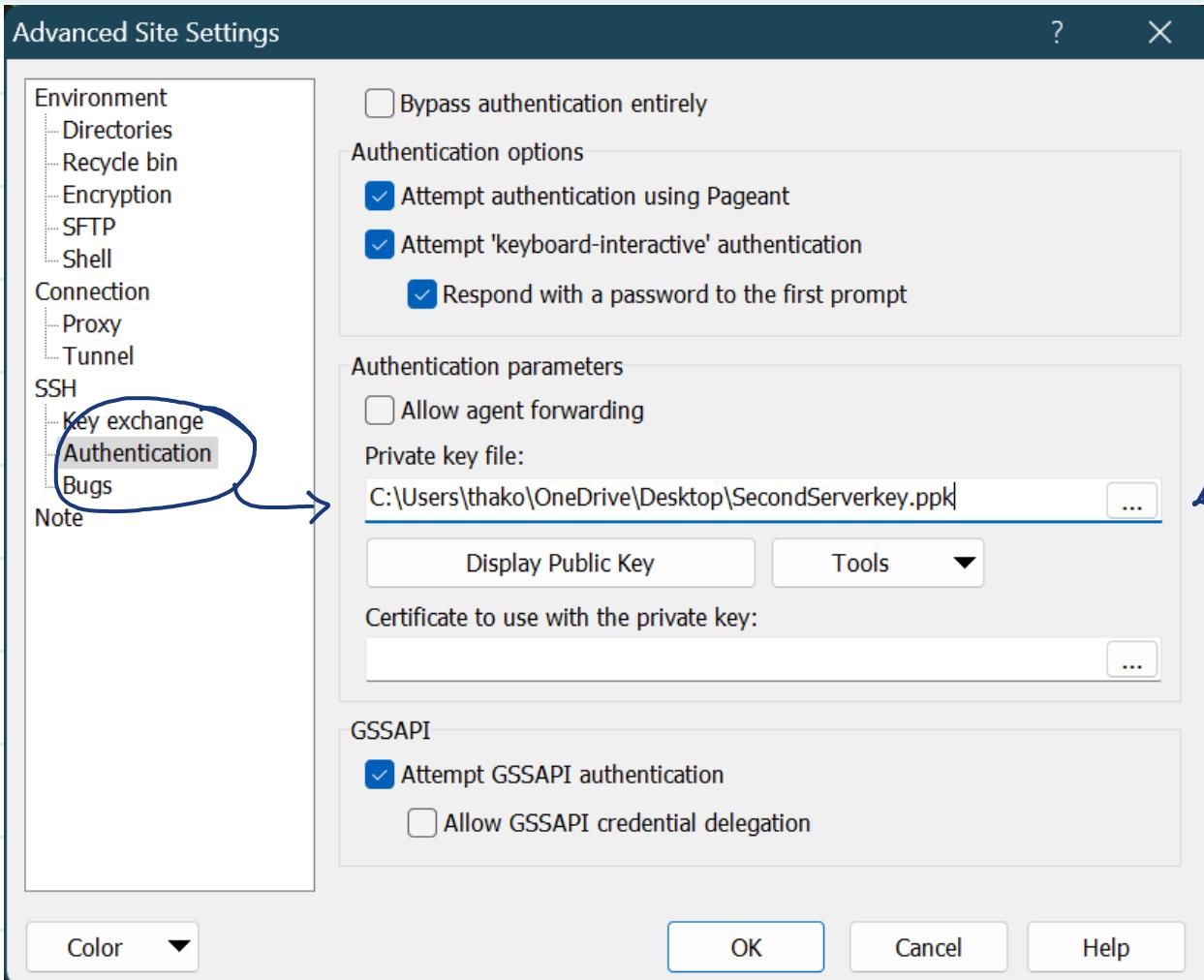
File folder 14-03-2024 09:50:11 Journals

0 B of 4.31 MB in 0 of 53 2 hidden 0 B of 4.31 MB in 0 of 53 2 hidden

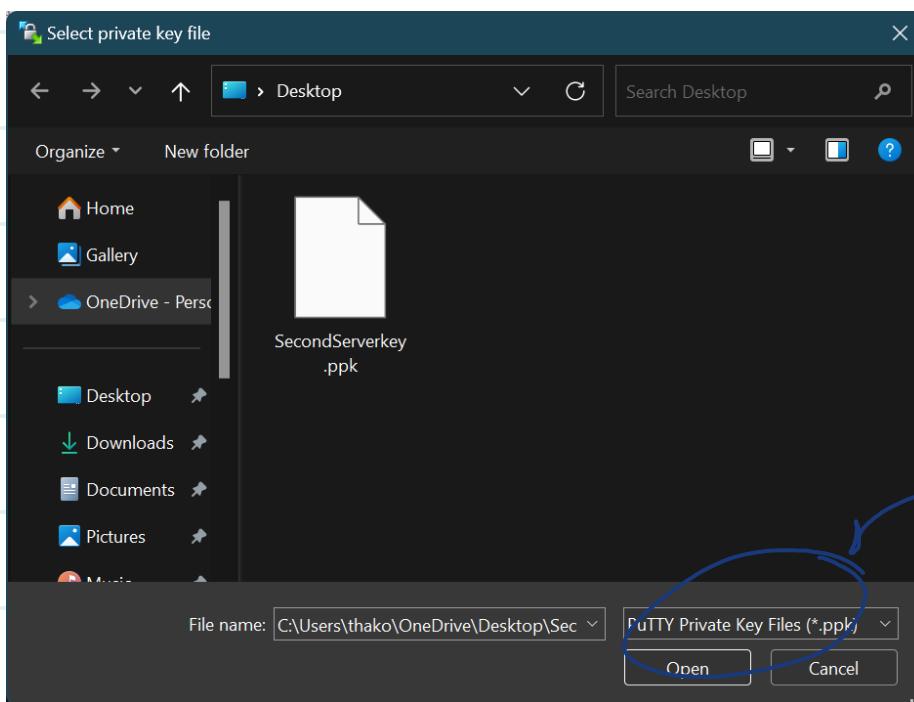
IP for instance

Username ubuntu

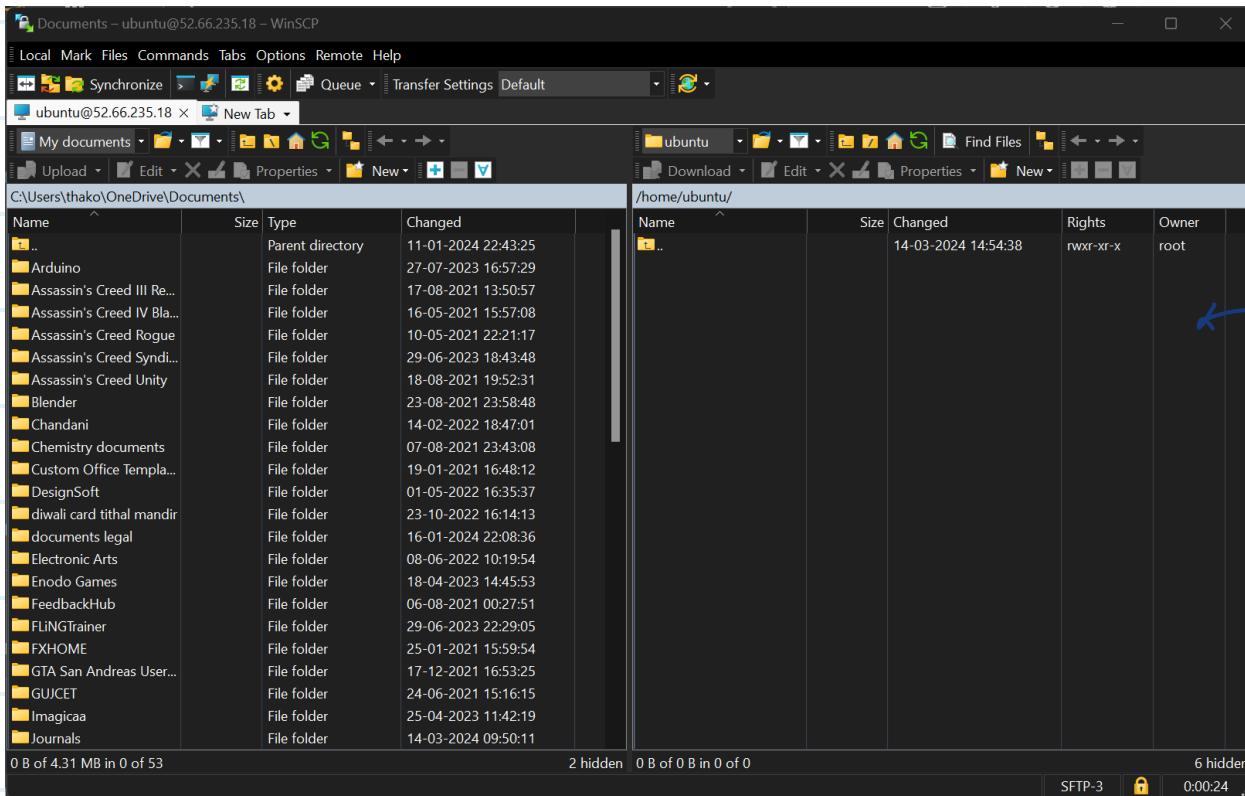
Instead of password goto advanced



select
keypair
file for
instance
if pem
file is
here
you need
to select
au file
in file
format
then select
pem file
lik



selected files
to see pem file
select it
Conversion
option will be
shown
press OK.



drag &
drop
files here

to move
file
go to ssh
again and
run

sudo su to
get
root
address

and move things with

`mv -r /home/ubuntu/dir1
/var/www/html`

and we can see output on screen.

Above knowledge is required for Learning

ELB and ASG

(Elastic
load
balancing)

(Autoscaling Groups)

Task: In Linux environment how to enable user ID and password login

→ First create new user (first get root access through)
sudo su

```
root@ip-172-31-5-86: /home/ubuntu
ubuntu@ip-172-31-5-86:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-5-86:~$ sudo su
root@ip-172-31-5-86:/home/ubuntu# |
```

```
root@ip-172-31-5-86: /home/ubuntu
ubuntu@ip-172-31-5-86:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-5-86:~$ sudo su
root@ip-172-31-5-86:/home/ubuntu# cat /etc/passwd ↪
t
```

check already created users

```
root@ip-172-31-5-86:/home/ubuntu
root@ip-172-31-5-86:/home/ubuntu# adduser User1
adduser: Please enter a username matching the regular expression configured
via the NAME_REGEX[_SYSTEM] configuration variable. Use the '--force-badname'
option to relax this check or reconfigure NAME_REGEX.
root@ip-172-31-5-86:/home/ubuntu# adduser First_User
adduser: Please enter a username matching the regular expression configured
via the NAME_REGEX[_SYSTEM] configuration variable. Use the '--force-badname'
option to relax this check or reconfigure NAME_REGEX.
root@ip-172-31-5-86:/home/ubuntu# adduser FirstUser
adduser: Please enter a username matching the regular expression configured
via the NAME_REGEX[_SYSTEM] configuration variable. Use the '--force-badname'
option to relax this check or reconfigure NAME_REGEX.
root@ip-172-31-5-86:/home/ubuntu# adduser firstuser
Adding user `firstuser' ...
Adding new group `firstuser' (1001) ...
Adding new user `firstuser' (1001) with group `firstuser' ...
Creating home directory `/home/firstuser' ...
Copying files from `/etc/skel' ...
New password:
```

home
1001
because
999
and
Ubuntu
already
created

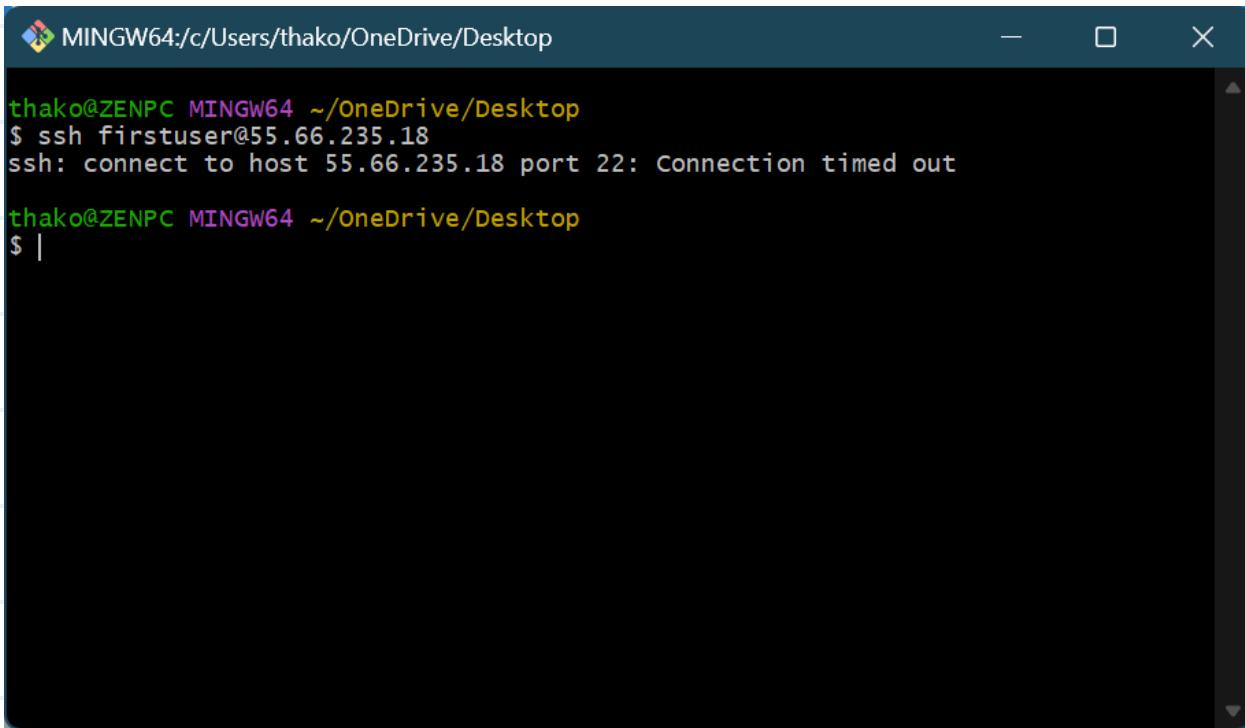
```
root@ip-172-31-5-86:/home/ubuntu
adduser: Please enter a username matching the regular expression configured
via the NAME_REGEX[_SYSTEM] configuration variable. Use the '--force-badname'
option to relax this check or reconfigure NAME_REGEX.
root@ip-172-31-5-86:/home/ubuntu# adduser FirstUser
adduser: Please enter a username matching the regular expression configured
via the NAME_REGEX[_SYSTEM] configuration variable. Use the '--force-badname'
option to relax this check or reconfigure NAME_REGEX.
root@ip-172-31-5-86:/home/ubuntu# adduser firstuser
Adding user `firstuser' ...
Adding new group `firstuser' (1001) ...
Adding new user `firstuser' (1001) with group `firstuser' ...
Creating home directory `/home/firstuser' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for firstuser
Enter the new value, or press ENTER for the default
    Full Name []: firstuser
    Room Number []: 3
    Work Phone []: 234678
    Home Phone []: 345678
    Other []: 34
Is the information correct? [Y/n] Y
```

Enter details

But still doing

ssh firstuser@

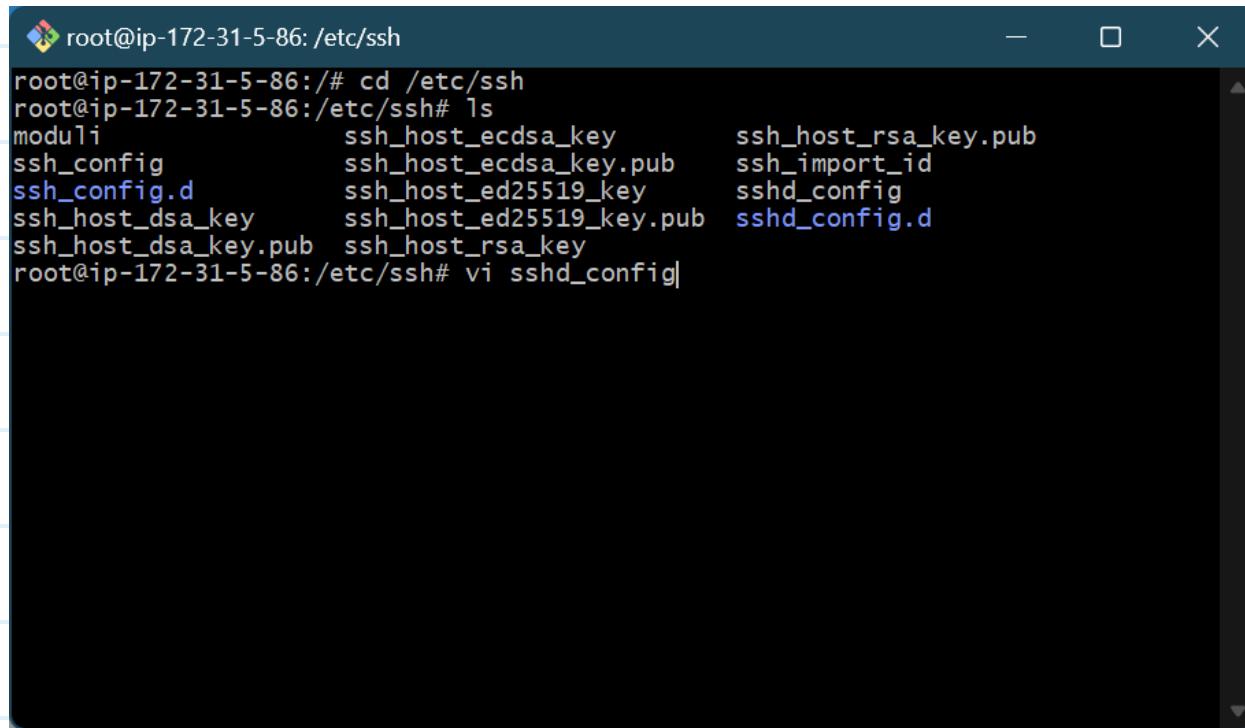
AM I IP won't work
we have to change config



```
MINGW64:/c/Users/thako/OneDrive/Desktop
thako@ZENPC MINGW64 ~/OneDrive/Desktop
$ ssh firstuser@55.66.235.18
ssh: connect to host 55.66.235.18 port 22: Connection timed out
thako@ZENPC MINGW64 ~/OneDrive/Desktop
$ |
```

↳
in a
new
gitbash

goto root access gitbash and do following



```
root@ip-172-31-5-86:/etc/ssh
root@ip-172-31-5-86:/# cd /etc/ssh
root@ip-172-31-5-86:/etc/ssh# ls
moduli          ssh_host_ecdsa_key      ssh_host_rsa_key.pub
ssh_config      ssh_host_ecdsa_key.pub  ssh_import_id
ssh_config.d    ssh_host_ed25519_key    sshd_config
ssh_host_dsa_key ssh_host_ed25519_key.pub sshd_config.d
ssh_host_dsa_key.pub ssh_host_rsa_key
root@ip-172-31-5-86:/etc/ssh# vi sshd_config|
```

```

root@ip-172-31-5-86: /etc/ssh
#AuthorizedKeysCommand none
#AuthorizedKeysCommandUser nobody
# For this to work you will also need host keys in /etc/ssh/ssh_known_hosts
#HostbasedAuthentication no
# Change to yes if you don't trust ~/.ssh/known_hosts for
# HostbasedAuthentication
#IgnoreUserKnownHosts no
# Don't read the user's ~/.rhosts and ~/.shosts files
#IgnoreRhosts yes

# To disable tunneled clear text passwords, change to no here!
#PasswordAuthentication yes
#PermitEmptyPasswords no

# Change to yes to enable challenge-response passwords (beware issues with
# some PAM modules and threads)
#KbdInteractiveAuthentication no

# Kerberos options
#KerberosAuthentication no
#KerberosGetAFSToken no
#KerberosTicketCleanup yes
#KerberosUseRoot yes

# GSSAPI options
#GSSAPIAuthentication no
#GSSAPICleanupCredentials yes
#GSSAPIStrictAcceptorCheck yes
#GSSAPIKeyExchange no

# Set this to 'yes' to enable PAM authentication, account processing,
# and session processing. If this is enabled, PAM authentication will
# be allowed through the KbdInteractiveAuthentication and
# PasswordAuthentication. Depending on your PAM configuration,
# PAM authentication via KbdInteractiveAuthentication may bypass
# the setting of "PermitRootLogin without-password".
# If you just want the PAM account and session checks to run without
# PAM authentication, then enable this but set PasswordAuthentication
# and KbdInteractiveAuthentication to 'no'.
UsePAM yes

#AllowAgentForwarding yes
#AllowTcpForwarding yes
#GatewayPorts no
#X11Forwarding yes
#X11DisplayOffset 10
#X11UseLocalhost yes
#PermitTTY yes
PrintMotd no

```

↓
Press Esc
↓
Type `:' together

```

root@ip-172-31-5-86: /etc/ssh
#GSSAPICleanupCredentials yes
#GSSAPIStrictAcceptorCheck yes
#GSSAPIKeyExchange no

# Set this to 'yes' to enable PAM authentication, account processing,
# and session processing. If this is enabled, PAM authentication will
# be allowed through the KbdInteractiveAuthentication and
# PasswordAuthentication. Depending on your PAM configuration,
# PAM authentication via KbdInteractiveAuthentication may bypass
# the setting of "PermitRootLogin without-password".
# If you just want the PAM account and session checks to run without
# PAM authentication, then enable this but set PasswordAuthentication
# and KbdInteractiveAuthentication to 'no'.
UsePAM yes

#AllowAgentForwarding yes
#AllowTcpForwarding yes
#GatewayPorts no
#X11Forwarding yes
#X11DisplayOffset 10
#X11UseLocalhost yes
#PermitTTY yes
#PrintMotd no
#PrintLastLog yes
#TCPKeepAlive yes
#PermitUserEnvironment no
#Compression delayed
#ClientAliveInterval 0
#ClientAliveCountMax 3
#UsedNS no
#IdFile /run/sshd.pid
#MaxStartups 10:30:100
#PermitTunnel no
#ChrootDirectory none
#VersionAddendum none

# no default banner path
#Banner none

# Allow client to pass locale environment variables
AcceptEnv LANG LC_*

# override default of no subsystems
Subsystem sftp /usr/lib/openssh/sftp-server

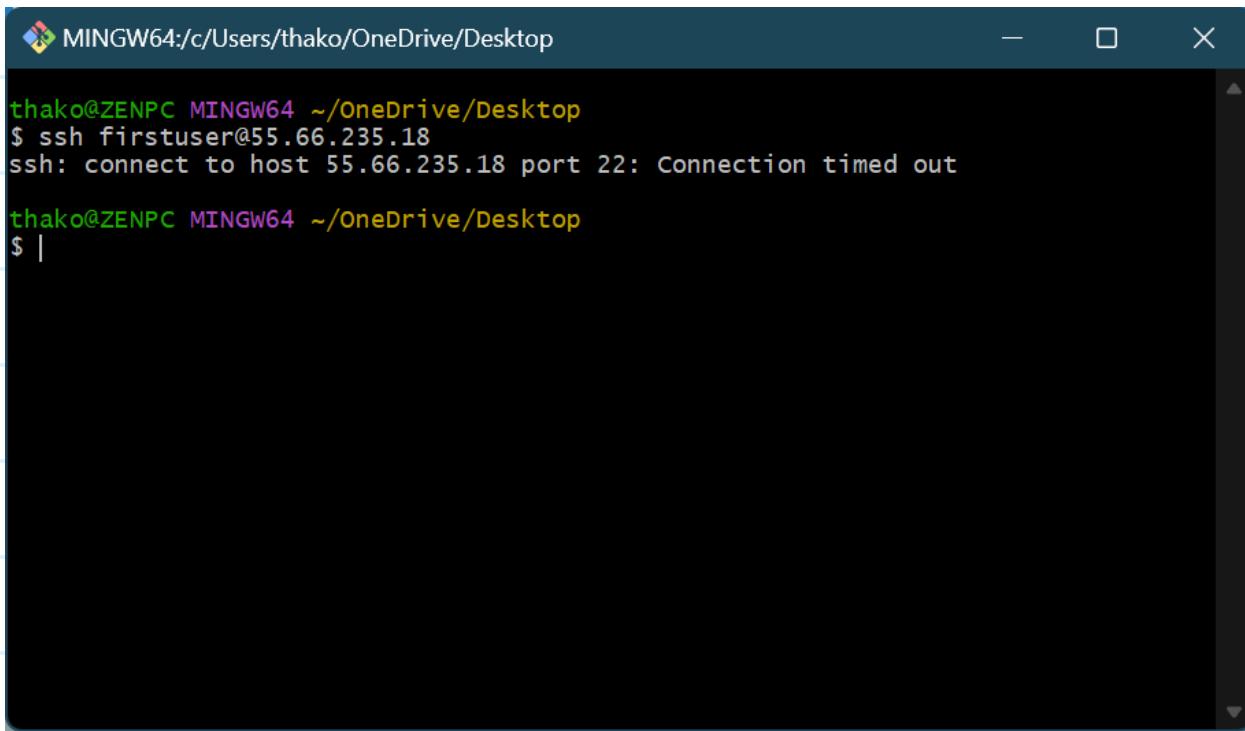
# Example of overriding settings on a per-user basis
#Match User anonymous
#    X11Forwarding no
#    AllowTcpForwarding no
#    PermitTTY no
#    ForceCommand cvs server
:wq

```

↓
wq write(Save) & quit

press Enter

then try accessing through below command again
it will happen this time



The screenshot shows a terminal window titled "MINGW64:/c/Users/thako/OneDrive/Desktop". The command entered is "ssh firstuser@55.66.235.18". The output shows an error message: "ssh: connect to host 55.66.235.18 port 22: Connection timed out". The terminal prompt "\$ |" is visible at the bottom.

this way multiple users can login to same VM together

task How to protect instance against accidental termination?

go to EC2 dashboard And Actions.

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with various EC2-related options like Instances, Images, and Elastic Block Store. The main area shows two instances: 'MySecondServer' (running) and another one. At the top right, there's a 'Actions' button with a dropdown menu. The menu has several options: Connect, View details, Manage instance state, Instance settings (which is currently selected), Networking, Security, Images and templates, and Monitor and troubleshoot. Handwritten notes include 'Actions' with an arrow pointing to the button, 'then Instance settings' with an arrow pointing to the dropdown item, and 'change termination protection' with an arrow pointing to the specific menu item.

This screenshot shows the 'Change termination protection' dialog box. It contains a message about preventing accidental termination and a checkbox labeled 'Enable'. The 'Enable' checkbox is checked. At the bottom right of the dialog, there are 'Cancel' and 'Save' buttons. Handwritten notes include an arrow pointing from the 'Enable' checkbox to the 'Save' button, and the words 'and Save' written next to the dialog box.

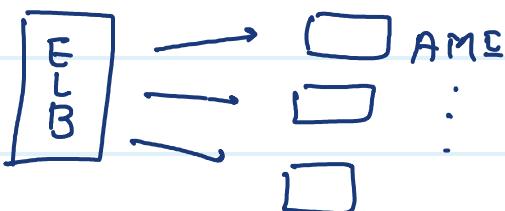
Elastic Load Balancing

15/3/24

- Required when, suppose we have application on an EC2 instance which has incoming requests at 2K req/min it has limit of 1 K req/min
 - if requests increase further, how can we handle this additional traffic we can handle this through load balancer
 - In above case requests goes to LB first it will get sent to different EC2 instances depending upon load
- Four types of load balancer are there in AWS one is discontinued three are currently applied. fourth is deprecated.

Clients

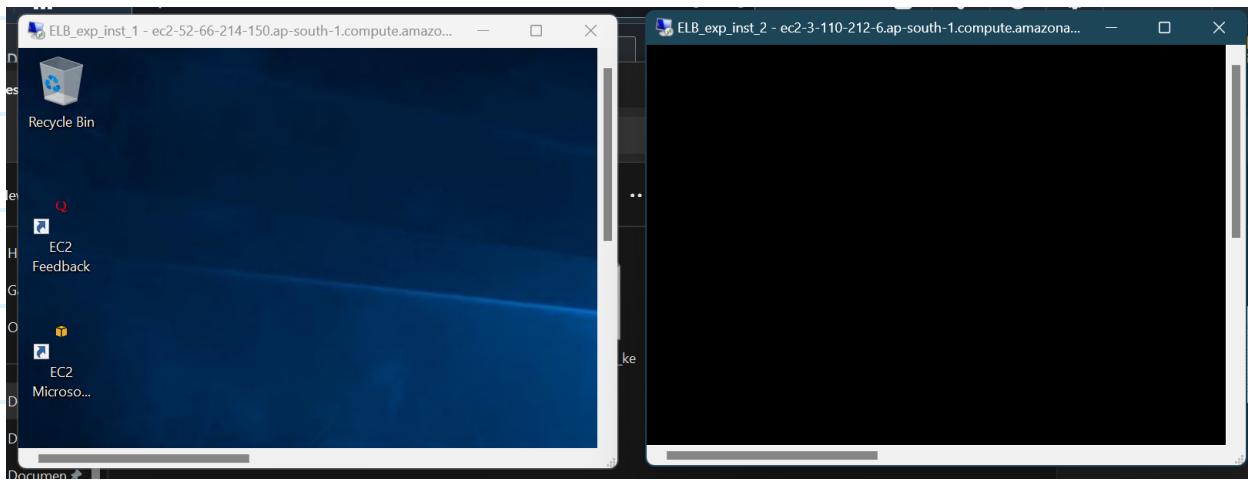
:



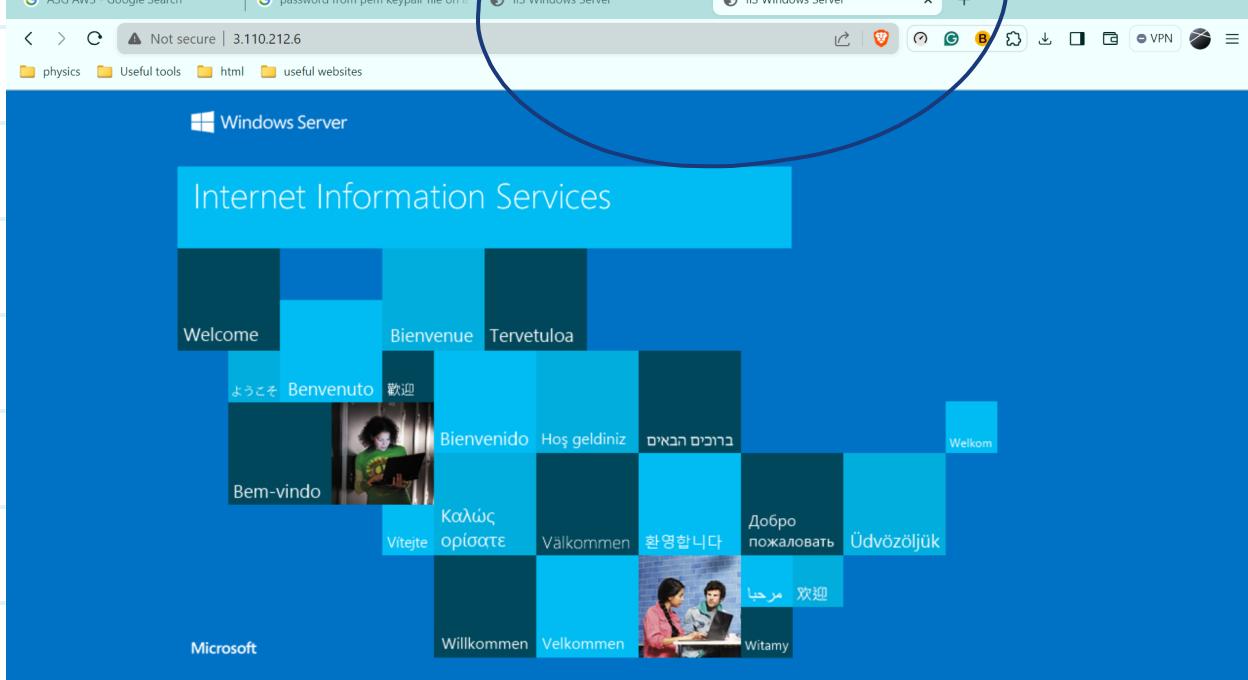
→ There is another service to handle such scenario with Auto Scaling Groups of overload when to use ASG and when to ELB.

Task ELB & ASG

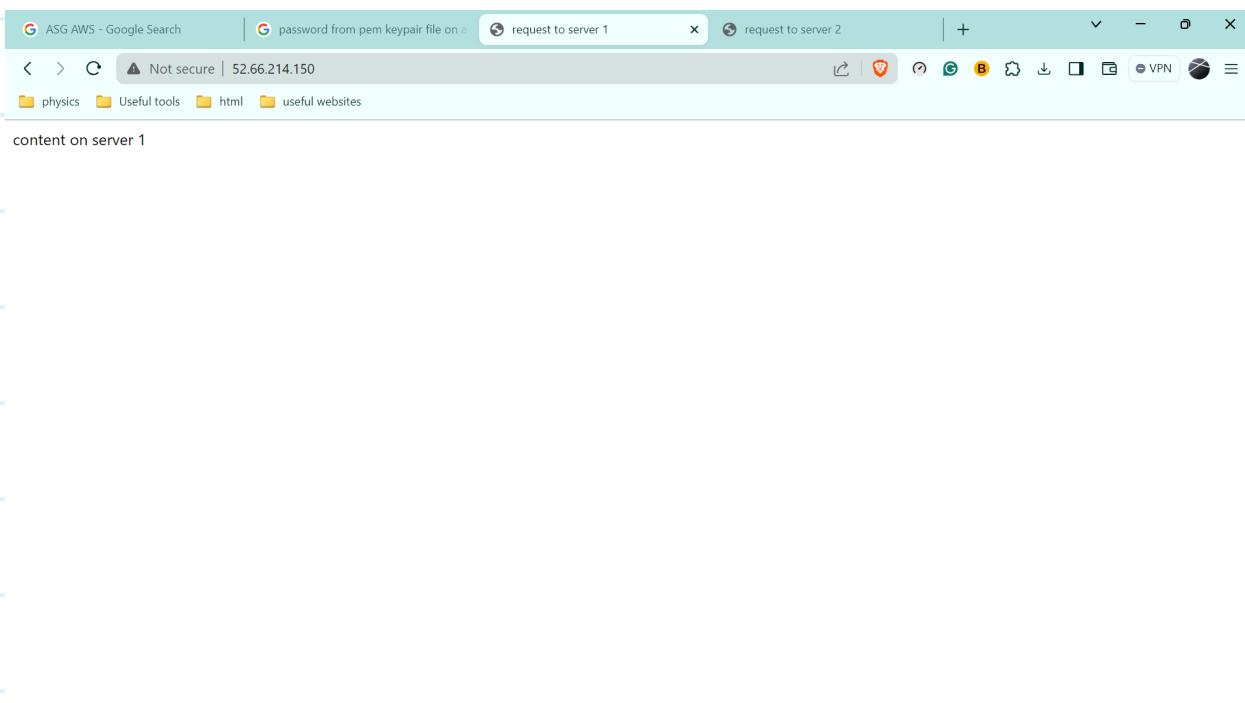
Create two EC2 instances and enable servers on both as well as, turn on port 80 HTTP.



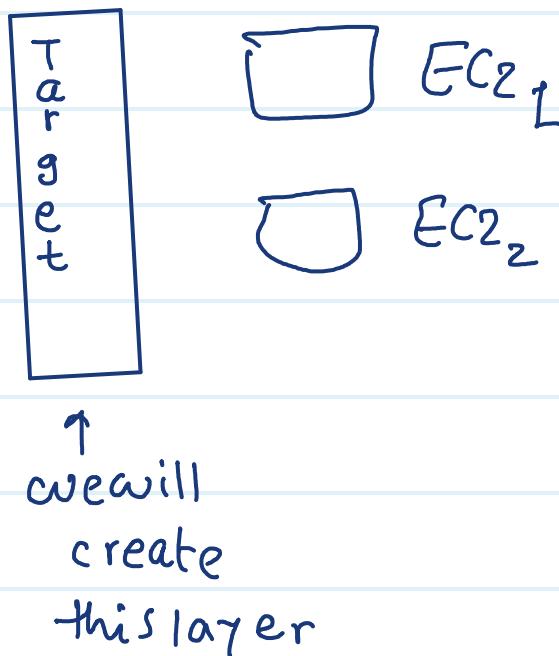
Let them turn on and make servers enable the 80 port



Create custom index files on both EC2 instances
to get following output in local browser.



Process to create ECB



To do that,

us check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP	IPv6 IP
/2 checks passed	View alarms +	ap-south-1a	ec2-52-66-214-150.ap...	52.66.214.150	-	-
/2 checks passed	View alarms +	ap-south-1a	ec2-3-110-212-6.ap-so...	3.110.212.6	-	-

Instance: i-0ce17aedb50354aa5 (ELB_exp_inst_2)

Details Status and alarms New Monitoring Security Networking Storage Tags

Instance summary

Instance ID: i-0ce17aedb50354aa5 (ELB_exp_inst_2)
 Public IPv4 address: 3.110.212.6 [open address]
 Private IPv4 addresses: 172.31.38.29
 Instance state: Running
 Public IPv4 DNS: ec2-3-110-212-6.ap-south-1.compute.amazonaws.com [open address]

Target group

Create

target group and attach EC2 instances to it.

The screenshot shows the AWS EC2 Target Groups page. The left sidebar navigation includes: Images, AMIs, AMI Catalog; Elastic Block Store, Volumes, Snapshots, Lifecycle Manager; Network & Security, Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces; Load Balancing, Load Balancers, Target Groups (selected), Trust Stores New; Auto Scaling, Auto Scaling Groups. The main content area displays the 'Target groups' table with one row: Name (empty), ARN (empty), Port (empty), Protocol (empty), Target type (empty). A message says 'No target groups' and 'You don't have any target groups in ap-south-1'. A large blue circle highlights the 'Create target group' button. A handwritten note 'create' is written next to it.

The screenshot shows the 'Register targets' page under the 'Basic configuration' section. It asks to choose a target type. The 'Instances' option is selected and highlighted with a blue circle. Other options include 'IP addresses', 'Lambda function', and 'Application Load Balancer'. A large blue circle highlights the 'Instances' section. Handwritten notes include a wavy line from the 'Instances' section to the 'IP addresses' section, and another wavy line from the 'IP addresses' section to the 'Lambda function' section.

HTTP1
Send requests to targets using HTTP/1.1. Supported when the request protocol is HTTP/1.1 or HTTP/2.

HTTP2
Send requests to targets using HTTP/2. Supported when the request protocol is HTTP/2 or gRPC, but gRPC-specific features are not available.

gRPC
Send requests to targets using gRPC. Supported when the request protocol is gRPC.

Health checks

The associated load balancer periodically sends requests, per the settings below, to the registered targets to test their status.

Health check protocol

HTTP ▾

Health check path

Use the default path of "/" to perform health checks on the root, or specify a custom path if preferred.

/

Up to 1024 characters allowed.

> Advanced health check settings

Attributes

click this

Traffic port

Override

Healthy threshold
The number of consecutive health checks successes required before considering an unhealthy target healthy.

2-10

Unhealthy threshold
The number of consecutive health check failures required before considering a target unhealthy.

2-10

Timeout
The amount of time, in seconds, during which no response means a failed health check.

seconds 2-120

Interval
The approximate amount of time between health checks of an individual target

seconds 5-300

Success codes
The HTTP codes to use when checking for a successful response from a target. You can specify multiple values (for example, "200,202") or a range of values (for example, "200-299").

aws Services Search [Alt+S] Mumbai Akshar AWS Admin

2-120

Interval
The approximate amount of time between health checks of an individual target
30 seconds
5-300

Success codes
The HTTP codes to use when checking for a successful response from a target. You can specify multiple values (for example, "200,202") or a range of values (for example, "200-299").
200

Attributes

Certain default attributes will be applied to your target group. You can view and edit them after creating the target group.

▶ **Tags - optional**
Consider adding tags to your target group. Tags enable you to categorize your AWS resources so you can more easily manage them.

Cancel Next

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↑ Next to create target group

EC2 > Target groups > Create target group

Step 1
Specify group details

Step 2
Register targets

Register targets

This is an optional step to create a target group. However, to ensure that your load balancer routes traffic to this target group you must register your targets.

Available instances (2)

	Instance ID	Name	State
<input type="checkbox"/>	i-0ce17aedb50354aa5	ELB_exp_inst_2	Running
<input type="checkbox"/>	i-08fce02afddbf804b	ELB_exp_inst_1	Running

0 selected

Ports for the selected instances
Ports for routing traffic to the selected instances.
80
1-65535 (separate multiple ports with commas)

Include as pending below

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← select instances to add to this target group

The screenshot shows the AWS Lambda console interface. In the top left, there's a search bar and a 'Services' dropdown. The main area is titled 'Available instances (2/2)' and lists two instances: 'i-0ce17aedb50354aa5' (Name: ELB_exp_inst_2, State: Running) and 'i-08fce02afddbf804b' (Name: ELB_exp_inst_1, State: Running). Both instances have checkboxes checked. A blue circle highlights the checkbox for 'i-0ce17aedb50354aa5'. Below the list, it says '2 selected'. Underneath, there's a section for 'Ports for the selected instances' with a text input containing '80' and a note '1-65535 (separate multiple ports with commas)'. A blue circle highlights the input field '80'. Below that is a button 'Include as pending below'. At the bottom, there's a 'Review targets' section with a table showing 'Targets (0)'.

This screenshot shows the continuation of the process. The top part is identical to the previous one, showing the selected instances and port configuration. Below the 'Review targets' section, the table now shows 'Targets (2)' with the same two instances listed. A blue circle highlights the 'Create target group' button at the bottom right of the 'Targets' table. Handwritten annotations include an arrow pointing to this button with the text 'click this'.

↑ click this

Introducing Automatic Target Weights (ATW) to increase application availability
Automatic Target Weights is achieved by turning on anomaly mitigation, which provides responsive, dynamic distribution of traffic to targets based on anomaly detection results. All HTTP/HTTPS target groups now include anomaly detection by default. [Learn more](#)

Target type	Protocol : Port	Protocol version	VPC
Instance	HTTP: 80	HTTP1	vpc-0535997132a5b9073
IP address type	Load balancer	None associated	
IPv4			

Total targets	Healthy	Unhealthy	Unused	Initial	Draining
2	0	0	2	0	0
	0 Anomalous				

Distribution of targets by Availability Zone (AZ)
Select values in this table to see corresponding filters applied to the Registered targets table below.

Now target group has been created then create a load balancer to operate on this group to do that,

Introducing Automatic Target Weights (ATW) to increase application availability
Automatic Target Weights is achieved by turning on anomaly mitigation, which provides responsive, dynamic distribution of traffic to targets based on anomaly detection results. All HTTP/HTTPS target groups now include anomaly detection by default. [Learn more](#)

Target type	Protocol : Port	Protocol version	VPC
Instance	HTTP: 80	HTTP1	vpc-0535997132a5b9073
IP address type	Load balancer	None associated	
IPv4			

Total targets	Healthy	Unhealthy	Unused	Initial	Draining
2	0	0	2	0	0
	0 Anomalous				

Distribution of targets by Availability Zone (AZ)
Select values in this table to see corresponding filters applied to the Registered targets table below.

click
this on EC2 Dashboard.

Screenshot of the AWS Cloud console showing the EC2 > Load balancers page. The sidebar shows navigation for Images, Elastic Block Store, Network & Security, Load Balancing, Auto Scaling, and more. The main content area displays a message about the resource map for Application Load Balancers, followed by a table titled "Load balancers" with a single row: "No load balancers". A blue circle highlights the "Create load balancer" button. A handwritten note on the right says "Create load balancer".

Screenshot of the AWS Cloud console showing the "Compare and select load balancer type" page. It compares three types: Application Load Balancer (Info), Network Load Balancer (Info), and Gateway Load Balancer (Info). The Application Load Balancer is shown handling Layer 7 traffic (HTTP, HTTPS) and Lambda functions. The Network Load Balancer is shown handling Layer 4 traffic (TCP, UDP) and VPC traffic. The Gateway Load Balancer is shown handling Layer 4 traffic (TCP, UDP) and virtual appliances. Handwritten notes include "different load balancers shown" and "they all do load balancing but work on different layers of networking (OSI)".

↓
Layer 7

↓
Layer 4

We will choose application load balancer.

different load balancers shown
they all do load balancing but work on different layers of networking (OSI)

ALB

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.

NLB

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.

GWLB

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

Create Application Load Balancer

Create

Classic Load Balancer - previous generation

Close

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create.

Basic configuration

Load balancer name
Name must be unique within your AWS account and can't be changed after the load balancer is created.
ELB_exp1_LoadBalancer1

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
An internet-facing load balancer routes requests from clients over the internet to targets. Requires a public subnet. [Learn more](#)
 Internal
An internal load balancer routes requests from clients to targets using private IP addresses.

IP address type **Info**
Select the type of IP addresses that your subnets use.
 IPv4
Recommended for internal load balancers.
 Dualstack
Includes IPv4 and IPv6 addresses.

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

VPC **Info**
Select the virtual private cloud (VPC) for your targets or you can [create a new VPC](#). Only VPCs with an internet gateway are enabled for selection. The selected VPC can't be changed.

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name
it

VPC [Info](#)
Select the virtual private cloud (VPC) for your targets or you can [create a new VPC](#). Only VPCs with an internet gateway are enabled for selection. The selected VPC can't be changed after the load balancer is created. To confirm the VPC for your targets, view your [target groups](#).

-
vpc-0535997132a5b9073
IPv6 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.

ap-south-1a (aps1-az1)
Subnet
subnet-0747fb372c8d6ae59

IPv4 address
Assigned by AWS

ap-south-1b (aps1-az3)
Subnet
subnet-0e376b5a6506458d2

IPv4 address
Assigned by AWS

ap-south-1c (aps1-az2)
Subnet
subnet-0c46086ef0deca5e5

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Select all availability zone

because it's not fixed

where our instance will be

Select security groups you created for EC2 instances

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

launch-wizard-1 sg-06502dc7e60213de VPC: vpc-0535997132a5b9073

launch-wizard-2 sg-0f8a96a5ccdd5edd5 VPC: vpc-0535997132a5b9073

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
Protocol: HTTP Port: 80 Default action: Forward to: Select a target group
[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.

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Select target group that you created to be associated with this ELB

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

Protocol	Port	Default action	Info
HTTP	: 80	Forward to	Select a target group
1-65535			

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.

Add listener

Add listener

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Services Search [Alt+S] Mumbai Akshar_AWS_Admin

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

Protocol	Port	Default action	Info
HTTP	: 80	Forward to	ELB-exp-targetgroup-1 Target type: Instance, IPv4
1-65535			

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.

Add listener

Load balancer tags - optional

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Load balancer tags - optional

Consider adding tags to your load balancer. Tags enable you to categorize your AWS resources so you can more easily manage them. The 'Key' is required, but 'Value' is optional. For example, you can have Key = production-webserver, or Key = webserver, and Value = production.

Optimize with service integrations - optional

Optimize your load balancing architecture by integrating AWS services with this load balancer at launch. You can also add these and other services after your load balancer is created by reviewing the load balancer's "Integrations" tab.

AWS Web Application Firewall (WAF) [Info](#) [Additional charges apply](#)

Optimizes: Security

Include WAF security protections behind the load balancer

Associates a pre-defined web ACL that includes the AWS-recommended security protections. Alternatively, you can associate any of your existing WAF web ACLs for custom protections.

AWS Global Accelerator [Info](#) [Additional charges apply](#)

Optimizes: Performance, Availability, Security

Create an accelerator

An accelerator will be created in your account. The accelerator provides 2 global static IPs that act as a fixed entry point to your load balancer.

Review

Review the load balancer configurations and make changes if needed. After you finish reviewing the configurations, choose **Create load balancer**.

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there
are paid
services
for additional
security

Service integrations [Edit](#)

AWS WAF: None
AWS Global Accelerator: None

Attributes

Server-side tasks and status

After completing and submitting the above steps, all server-side tasks and their statuses become available for monitoring.

Create load balancer

Scroll
down
and
create

The screenshot shows the AWS EC2 Load Balancers console. A success message at the top states: "Successfully created load balancer: ELB-exp1-LoadBalancer1. It might take a few minutes for your load balancer to fully set up and route traffic. Targets will also take a few minutes to complete the registration process and pass initial health checks." Below this, the "ELB-exp1-LoadBalancer1" page is displayed. A callout box on the left says: "Introducing resource map for Application Load Balancers. Resource map is a visual representation of the relationships between load balancer resources and provides the ability to view, explore, and troubleshoot the architecture of your load balancer. Resource map can be viewed on the load balancers detail page. Share feedback to help us improve your experience." The "Details" section shows the following information:

Load balancer type	Status	VPC	IP address type
Application	Provisioning	vpc-0535997132a5b9073	IPv4
Scheme	Internet-facing	ZP97RAFLXTNZK	Date created March 15, 2024, 10:15 (UTC+05:30)
		Availability Zones subnet-0c46086ef0deca5e5	
		ap-south-1c (aps1-a2z)	

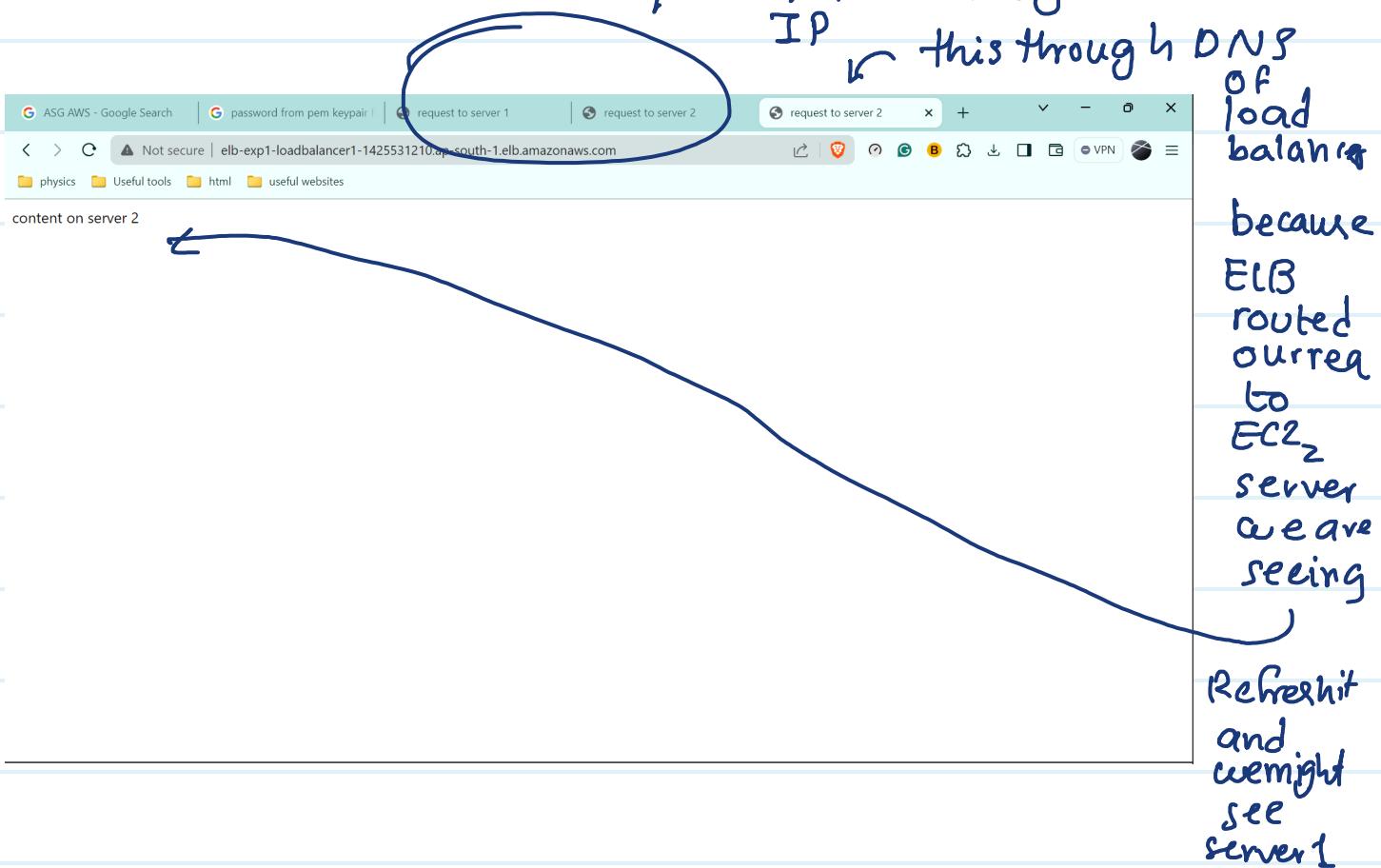
till this point we have been accessing both our instance servers through their IP addresses Now we will access them through DNS name of load server

ELB will accept the request and distribute the traffic

The screenshot shows the AWS Load Balancers console. The search bar contains "Resource map can be viewed on the load balancers detail page. Share feedback to help us improve your experience." Below this, the "Load balancers (1/1)" section is shown. A blue circle highlights the "DNS name" field, which contains "ELB-exp1-LoadBalancer1...". The "Create load balancer" button is visible. The "Load balancer: ELB-exp1-LoadBalancer1" details page is open, showing the following information:

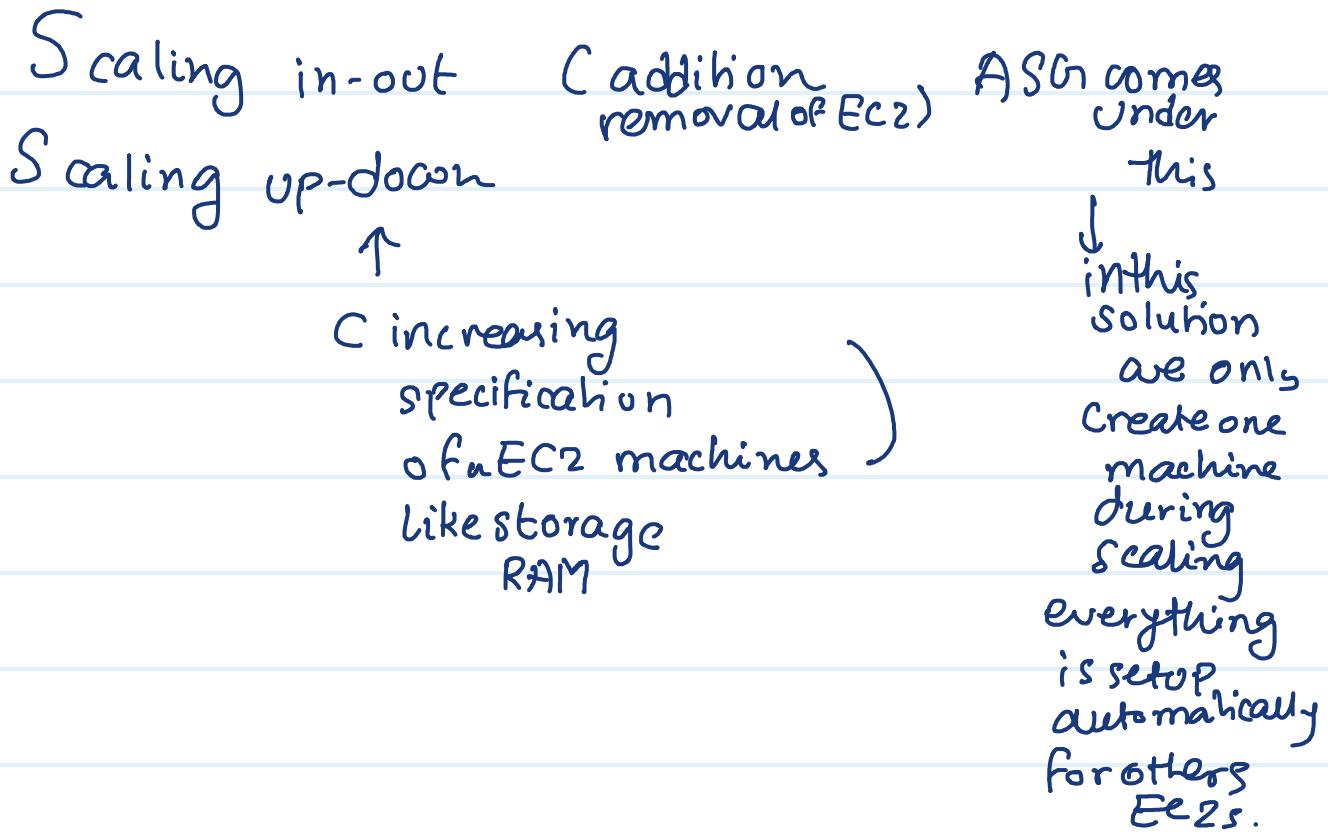
Load balancer type	Status	VPC	IP address type
Application	Active	vpc-0535997132a5b9073	IPv4
Scheme	Internet-facing	ZP97RAFLXTNZK	Date created March 15, 2024, 10:15
		Availability Zones subnet-0c46086ef0deca5e5	

DNS Name
Try it in
your local pc
browser



→ In above solution EC2 instances are fixed, so you will be paying for those regardless of number of requests but what if you have an automated way such that as per load dynamically additional instances will be generated and when load goes down it will be scaled down,

Automated Scaling groups (ASG)



ASG can be done with load balancer or without load balancer.

AWS EC2 autoscaling doesn't cost you anything
But for cloudwatch services there are fees.

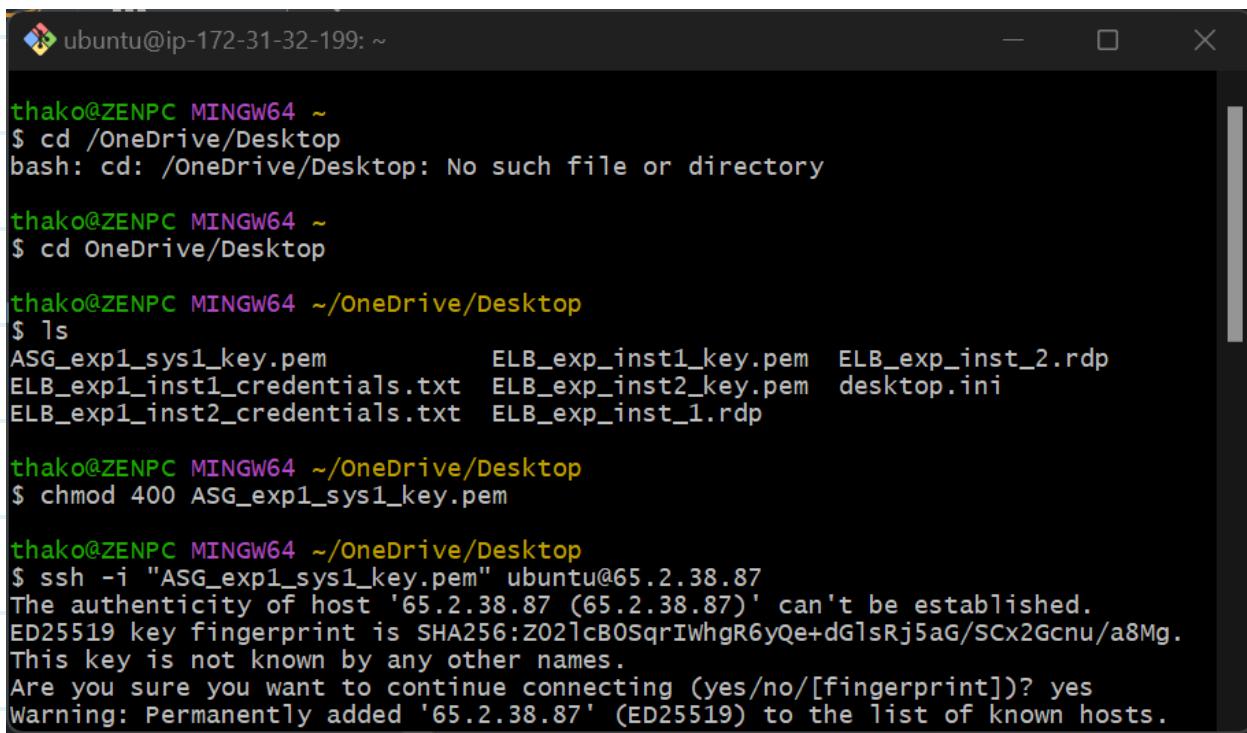
ASG (AutoScaling Groups)

- collection of EC2 instances with defined minimum number of instances and maximum number of instances with desired capacity

Create an EC2 instance. This time create an Ubuntu instance setup as shown below

but if your Infra require moves such EC2 instances individual setup takes long time solution of this is create an image (AMI) of our instance and then create other instances through that image

accessing through SSH



```

ubuntu@ip-172-31-32-199: ~
thako@ZENPC MINGW64 ~
$ cd /OneDrive/Desktop
bash: cd: /OneDrive/Desktop: No such file or directory

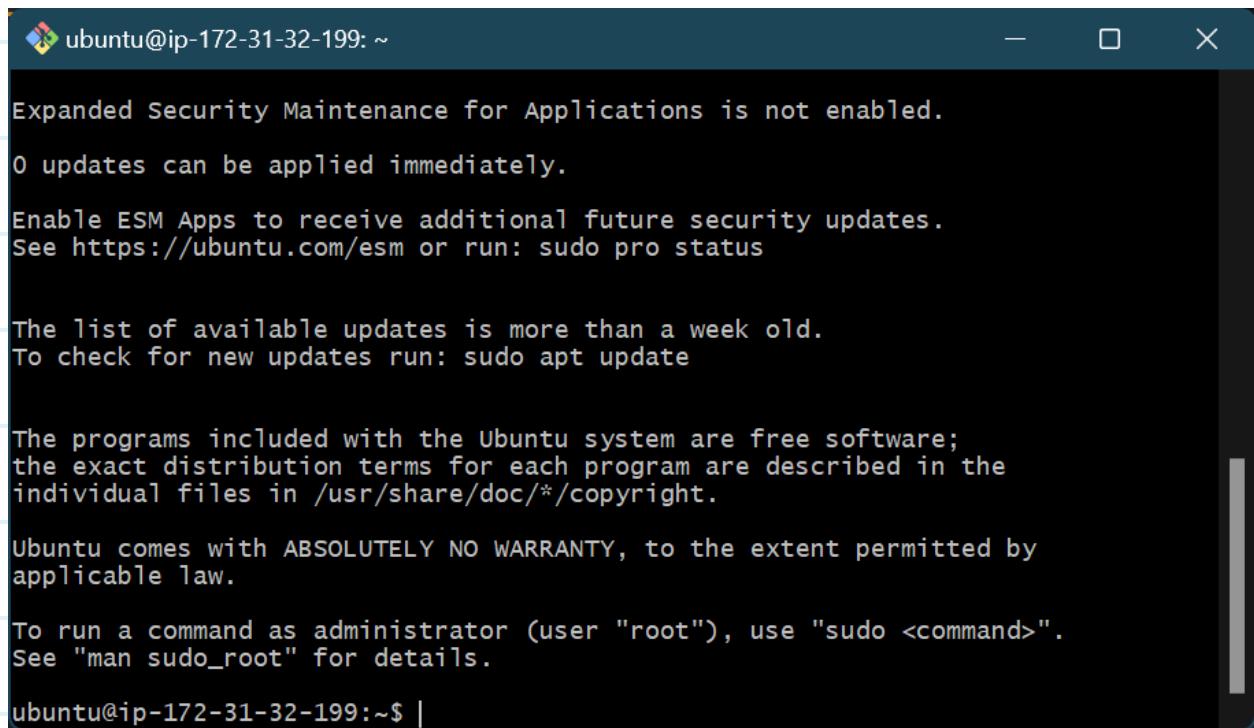
thako@ZENPC MINGW64 ~
$ cd OneDrive/Desktop

thako@ZENPC MINGW64 ~/OneDrive/Desktop
$ ls
ASG_expl_sys1_key.pem      ELB_exp_inst1_key.pem  ELB_exp_inst_2.rdp
ELB_expl_inst1_credentials.txt  ELB_exp_inst2_key.pem  desktop.ini
ELB_expl_inst2_credentials.txt  ELB_exp_inst_1.rdp

thako@ZENPC MINGW64 ~/OneDrive/Desktop
$ chmod 400 ASG_expl_sys1_key.pem

thako@ZENPC MINGW64 ~/OneDrive/Desktop
$ ssh -i "ASG_expl_sys1_key.pem" ubuntu@65.2.38.87
The authenticity of host '65.2.38.87 (65.2.38.87)' can't be established.
ED25519 key fingerprint is SHA256:Z021cB0SqrIWhgR6yQe+dGlsRj5aG/SCx2Gcnu/a8Mg.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '65.2.38.87' (ED25519) to the list of known hosts.

```



```

ubuntu@ip-172-31-32-199: ~
Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-32-199:~$ |

```

Now setup as below,

```
C root@ip-172-31-32-199:~/home/ubuntu
ubuntu@ip-172-31-32-199:~$ sudo su
root@ip-172-31-32-199:/home/ubuntu# apt update
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [19 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:5 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:6 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:7 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:8 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:9 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:10 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:11 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1462 kB]
Get:12 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [285 kB]
```

then do
commands,

- apt install apache2
- apt install mysql-server
- mysql_secure_installation ↴

After doing
this give
following
choices

```
root@ip-172-31-32-199:~/home/ubuntu
root@ip-172-31-32-199:/home/ubuntu# mysql_secure_installation

Securing the MySQL server deployment.

Connecting to MySQL using a blank password.

VALIDATE PASSWORD COMPONENT can be used to test passwords
and improve security. It checks the strength of password
and allows the users to set only those passwords which are
secure enough. Would you like to setup VALIDATE PASSWORD component?

Press y|Y for Yes, any other key for No: y

There are three levels of password validation policy:

LOW    Length >= 8
MEDIUM Length >= 8, numeric, mixed case, and special characters
STRONG Length >= 8, numeric, mixed case, special characters and dictionary
          file

Please enter 0 = LOW, 1 = MEDIUM and 2 = STRONG: 0

Skipping password set for root as authentication with auth_socket is used by default.
```

```
root@ip-172-31-32-199: /home/ubuntu
Skipping password set for root as authentication with auth_socket is used by default.
If you would like to use password authentication instead, this can be done with the "ALTER_USER" command.
See https://dev.mysql.com/doc/refman/8.0/en/alter-user.html#alter-user-password-management for more information.

By default, a MySQL installation has an anonymous user,
allowing anyone to log into MySQL without having to have
a user account created for them. This is intended only for
testing, and to make the installation go a bit smoother.
You should remove them before moving into a production
environment.

Remove anonymous users? (Press y|Y for Yes, any other key for No) : No
... skipping.

Normally, root should only be allowed to connect from
'localhost'. This ensures that someone cannot guess at
the root password from the network.
```

```
root@ip-172-31-32-199: /home/ubuntu
'localhost'. This ensures that someone cannot guess at
the root password from the network.

Disallow root login remotely? (Press y|Y for Yes, any other key for No) : No
... skipping.
By default, MySQL comes with a database named 'test' that
anyone can access. This is also intended only for testing,
and should be removed before moving into a production
environment.

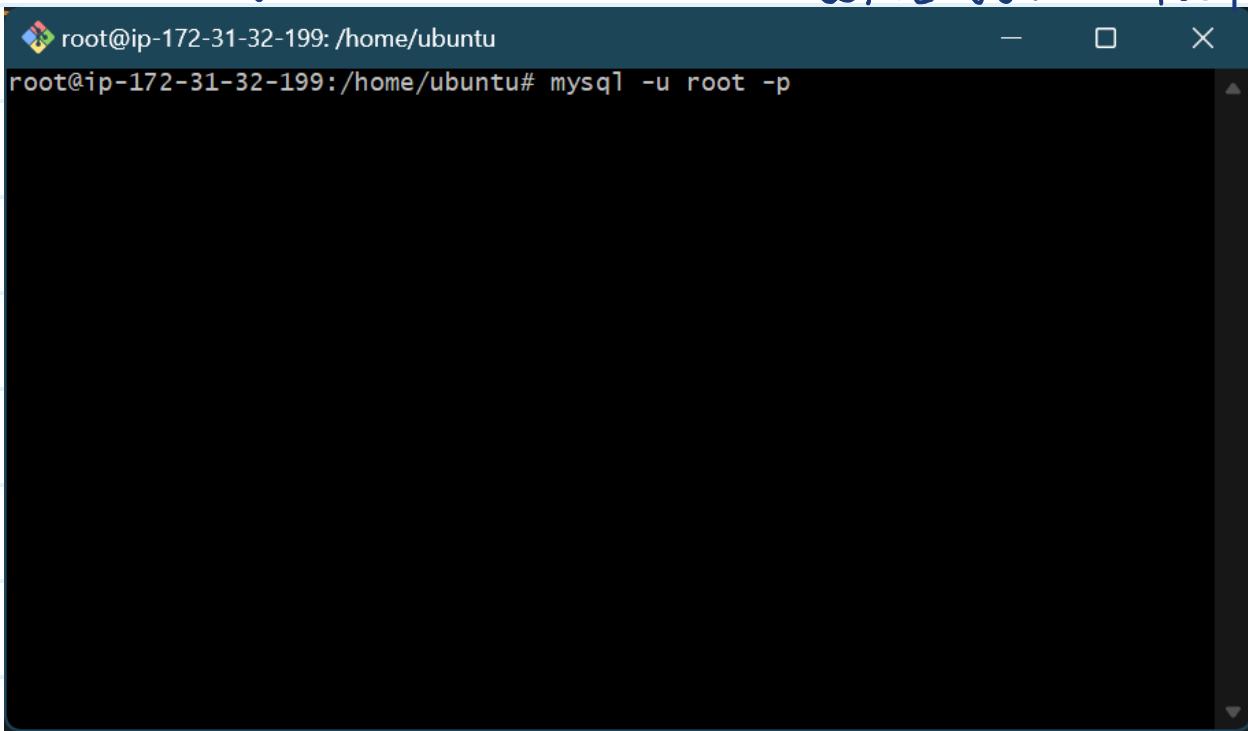
Remove test database and access to it? (Press y|Y for Yes, any other key for No)
: No
... skipping.
Reloading the privilege tables will ensure that all changes
made so far will take effect immediately.

Reload privilege tables now? (Press y|Y for Yes, any other key for No) : y
Success.

All done!
root@ip-172-31-32-199:/home/ubuntu#
```

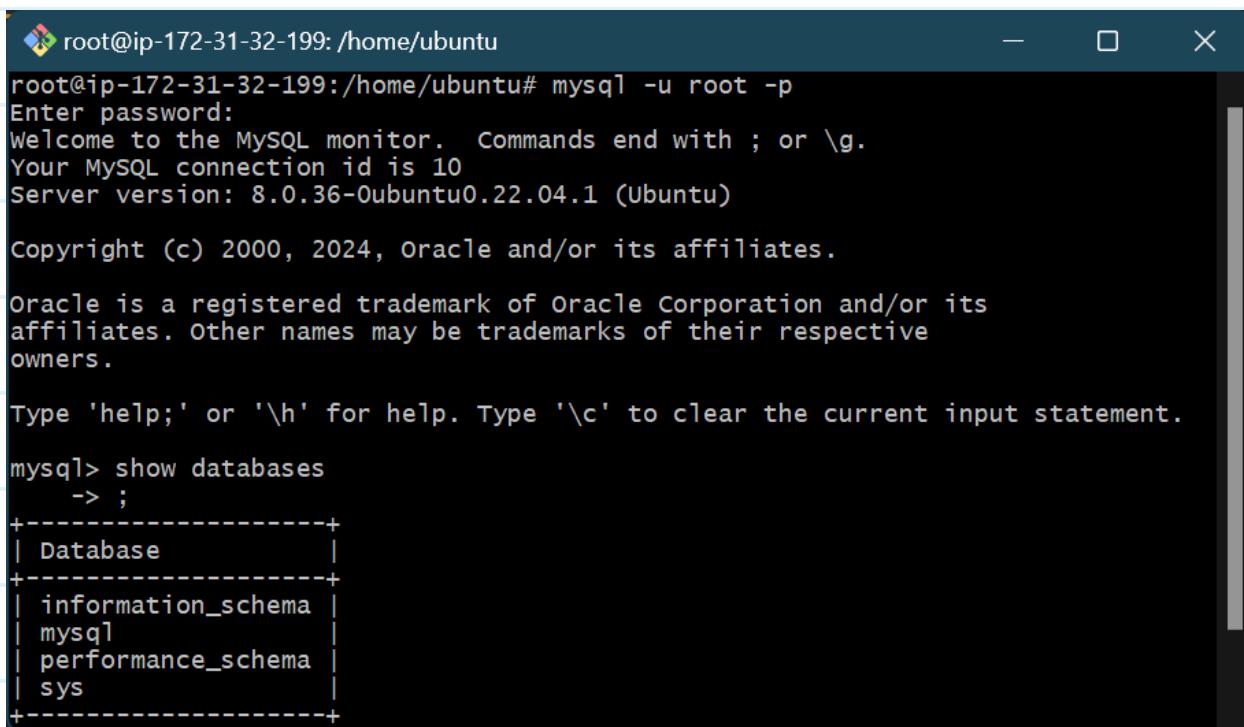
After this we see how to create database and tables.

✓ Access to mysql server on your instance
as root user No password



```
root@ip-172-31-32-199:/home/ubuntu
root@ip-172-31-32-199:/home/ubuntu# mysql -u root -p
```

so just
do
enter
enter



```
root@ip-172-31-32-199:/home/ubuntu
root@ip-172-31-32-199:/home/ubuntu# mysql -u root -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 8.0.36-Ubuntu0.22.04.1 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases
    -> ;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
```

```
root@ip-172-31-32-199: /home/ubuntu
```

```
ERROR 1049 (42000): Unknown database 'pdeu'
mysql> create pdeu
      ->;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
corresponds to your MySQL server version for the right syntax to use near 'pdeu'
at line 1
mysql> create database pdeu
      ->;
Query OK, 1 row affected (0.01 sec)

mysql> show databases
      ->;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| pdeu |
| performance_schema |
| sys |
+-----+
5 rows in set (0.01 sec)

mysql> |
```

```
root@ip-172-31-32-199: /home/ubuntu
```

```
| Database   |
+-----+
| information_schema |
| mysql |
| pdeu |
| performance_schema |
| sys |
+-----+
5 rows in set (0.01 sec)

mysql> use pdeu
Database changed
mysql> create table students(
      -> sid varchar(5) primary key,
      -> name varchar(10) not null);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
corresponds to your MySQL server version for the right syntax to use near '.
name varchar(10) not null' at line 2
mysql> create table students(
      -> sid varchar(5) primary key,
      -> name varchar(10) not null);
Query OK, 0 rows affected (0.03 sec)

mysql> |
```

```

root@ip-172-31-32-199: /home/ubuntu
mysql> use pdeu
Database changed
mysql> create table students(
    -> sid varchar(5) primary key,
    -> name varchar(10) not null;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
corresponds to your MySQL server version for the right syntax to use near '.
name varchar(10) not null' at line 2
mysql> create table students(
    -> sid varchar(5) primary key,
    -> name varchar(10) not null;
Query OK, 0 rows affected (0.03 sec)

mysql> desc students
-> ;
+-----+-----+-----+-----+-----+
| Field | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| sid   | varchar(5) | NO   | PRI  | NULL    |       |
| name  | varchar(10) | NO   |       | NULL    |       |
+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

mysql>

```

```

root@ip-172-31-32-199: /home/ubuntu
-> name varchar(10) not null;
Query OK, 0 rows affected (0.03 sec)

mysql> desc students
-> ;
+-----+-----+-----+-----+-----+
| Field | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| sid   | varchar(5) | NO   | PRI  | NULL    |       |
| name  | varchar(10) | NO   |       | NULL    |       |
+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

mysql> show create table students\G
***** 1. row *****
    Table: students
Create Table: CREATE TABLE `students` (
  `sid` varchar(5) NOT NULL,
  `name` varchar(10) NOT NULL,
  PRIMARY KEY (`sid`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
1 row in set (0.01 sec)

mysql> |

```

↖

This command is to show how table was created.

```

root@ip-172-31-32-199: /home/ubuntu
***** 1. row *****
    Table: students
Create Table: CREATE TABLE `students` (
  `sid` varchar(5) NOT NULL,
  `name` varchar(10) NOT NULL,
  PRIMARY KEY (`sid`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
1 row in set (0.01 sec)

mysql> cls
-> ;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
corresponds to your MySQL server version for the right syntax to use near 'cls'
at line 1
mysql> clear;
mysql> show tables;
+-----+
| Tables_in_pdeu |
+-----+
| students       |
+-----+
1 row in set (0.00 sec)

mysql> |

```

```
root@ip-172-31-32-199:/home/ubuntu
at line 1
mysql> clear;
mysql> show tables;
+-----+
| Tables_in_pdeu |
+-----+
| students      |
+-----+
1 row in set (0.00 sec)

mysql> insert into students values ("21BCP172","Akshar");
ERROR 1406 (22001): Data too long for column 'sid' at row 1
mysql> insert into students values ("CP72","Akshar");
Query OK, 1 row affected (0.01 sec)

mysql> select * from students;
+----+----+
| sid | name |
+----+----+
| CP72 | Akshar |
+----+----+
1 row in set (0.00 sec)

mysql> |
```

```
root@ip-172-31-32-199:/home/ubuntu
mysql> show tables;
+-----+
| Tables_in_pdeu |
+-----+
| students      |
+-----+
1 row in set (0.00 sec)

mysql> insert into students values ("21BCP172","Akshar");
ERROR 1406 (22001): Data too long for column 'sid' at row 1
mysql> insert into students values ("CP72","Akshar");
Query OK, 1 row affected (0.01 sec)

mysql> select * from students;
+----+----+
| sid | name |
+----+----+
| CP72 | Akshar |
+----+----+
1 row in set (0.00 sec)

mysql> exit
Bye
root@ip-172-31-32-199:/home/ubuntu# |
```

Now to create Amazon Machine Image

In EC dashboard

Instances (3) Info

ASG_exp1_sys1 i-0f5db2fa27af3b2ea Running t2.micro 2/2 checks passed

Select an instance

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1
In
EC
dashboard

Select
Ec2
you want
to create
image
for,

Actions ▾

Launch instances ▾

Create image

Create template from instance

Launch more like this

Instance: i-0f5db2fa27af3b2ea (ASG_exp1_sys1)

Details Status and alarms Monitoring Security Networking Storage Tags

Instance summary

Instance ID: i-0f5db2fa27af3b2ea (ASG_exp1_sys1)

Public IPv4 address: 65.238.87 | open address

Private IP4 addresses: 172.31.32.199

Instance state: Running

Public IPv4 DNS: ec2-65-2-38-87.ap-south-1.compute.amazonaws.com | open address

Hostname type: IP name: i-0f5db2fa27af3b2ea

Private IP DNS name (IPv4 only): i-0f5db2fa27af3b2ea

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In Action
Image
and
templates

Create
Image

Name and description

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EC2 > Instances > i-0f5db2fa27af3b2ea > Create image

Create image Info

An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.

Instance ID	i-0f5db2fa27af3b2ea (ASG_exp1_sys1)						
Image name	ASG_exp1_sys_AMI						
Maximum 127 characters. Can't be modified after creation.							
Image description - optional	image of ubuntu server sys made for ASG exp1						
Maximum 255 characters							
No reboot	<input type="checkbox"/> Enable						
Instance volumes							
Storage type	Device	Snapshot	Size	Volume type	IOPS	Throughput	Delete on termination
EBS	/dev/	Create new snapshot from volume	10	EBS General Purpose S...	3000	3000	<input checked="" type="checkbox"/> Enable

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EC2 Snapshot Size Volume type IOPS Throughput Delete on termination Encrypted

10 EBS General Purpose S... 3000 Enable Enable

The creation process, Amazon EC2 creates a snapshot of each of the above volumes.

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.

Tag image and snapshots separately Tag the image and the snapshots with different tags.

Tag snapshots together Tag all the snapshots with the same tag.

Cancel Create image

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Create image

Currently creating AMI ami-050fc8233af5a47d1 from instance i-0f5db2fa27af3b2ea. Check that the AMI status is 'Available' before deleting the instance or carrying out other actions related to this AMI.

Instances (3) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
ELB_exp_inst_1	i-08fce02afddbf804b	Running	t2.micro	2/2 checks passed	View alarms
ELB_exp_inst_2	i-0ce17aedb50354aa5	Running	t2.micro	2/2 checks passed	View alarms
ASG_exp1_sys1	i-0f5db2fa27af3b2ea	Running	t2.micro	2/2 checks passed	View alarms

Select an instance

Currently creating AMI ami-050fc8233af5a47d1 from instance i-0f5db2fa27af3b2ea. Check that the AMI status is 'Available' before deleting the instance or carrying out other actions related to this AMI.

Instances (3) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
ELB_exp_inst_1	i-08fce02afddbf804b	Running	t2.micro	2/2 checks passed	View alarms
ELB_exp_inst_2	i-0ce17aedb50354aa5	Running	t2.micro	2/2 checks passed	View alarms
ASG_exp1_sys1	i-0f5db2fa27af3b2ea	Running	t2.micro	2/2 checks passed	View alarms

Select an instance

you can see
your created
AMIs here

The screenshot shows the AWS EC2 Dashboard with the 'Images' section selected. Under 'AMIs', a new AMI named 'ASG_exp1_sys_AMI' has been created and is listed in the table. A blue circle highlights the AMI name in the table header. Handwritten text 'Notice new AMI' is written over the table area.

Name	AMI ID	Source
ASG_exp1_sys_AMI	ami-050fc8233af5a47d1	058264535684/ASG_exp1_sys_AMI

Now to create instances with this AMI

Select AMI and choose option launch instance
from this AMI

The screenshot shows the same EC2 AMI Management interface. The 'Launch instance from AMI' button in the top right of the main table area is highlighted with a large blue circle. A blue arrow points from the handwritten text 'Select AMI and choose option launch instance from this AMI' down towards this button.

Name	AMI ID	Source
ASG_exp1_sys_AMI	ami-050fc8233af5a47d1	058264535684/ASG_exp1_sys_AMI

Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name
e.g. My Web Server Add additional tags

Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below.

Search our full catalog including 1000s of application and OS images

AMI from catalog [Recent](#) [My AMIs](#) [Quick Start](#)

Amazon Machine Image (AMI)
ASG_exp1_sys_AMI
ami-050fc8233af5a47d1

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CloudShell Feedback

Name it

Instead of showing OSs, as earlier now it will show our AMI

Instance type [Info](#) | [Get advice](#)

Instance type

t2.micro	Free tier eligible
Family: t2	1 vCPU 1 GiB Memory Current generation: true
On-Demand Linux base pricing: 0.0124 USD per Hour	
On-Demand Windows base pricing: 0.017 USD per Hour	
On-Demand RHEL base pricing: 0.0724 USD per Hour	
On-Demand SUSE base pricing: 0.0124 USD per Hour	

All generations Compare instance types

Additional costs apply for AMIs with pre-installed software

Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required Select [Create new key pair](#)

Network settings [Info](#)

Network [Edit](#)

vpc-0535997132a5b9073

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CloudShell Feedback

new can be created
or old can be used en wcu

The screenshot shows the AWS Network settings page. In the 'Firewall (security groups)' section, the 'Select existing security group' radio button is selected, and a dropdown menu shows a single item: 'launch-wizard-3 sg-019d963a01a55ea97'. A blue arrow points from the handwritten note 'select security group created for EC2(which we used to make AMI)' to this dropdown menu.

select
security
group
created
for EC2(which

we used to
make AMI)

The screenshot shows the AWS Advanced details page. At the bottom right, there is a large orange button labeled 'Launch instance'. A blue circle highlights this button, and a blue arrow points from the handwritten note 'Launch instance' to it.

Launch
instance

As we can see, this was original setup EC2, this EC2 is created from AMI of the first

Instances (1/4) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
ELB_exp_inst_1	i-08fce02af3dbf804b	Running	t2.micro	2/2 checks passed	View alarms
ELB_exp_inst_2	i-0ce17ce1f50354aa5	Running	t2.micro	2/2 checks passed	View alarms
ASG_exp1_sys1	i-0f5db2fa27af3b2ea	Running	t2.micro	2/2 checks passed	View alarms
ASG_exp1_sys...	i-013e0d6f24e7f869b	Pending	t2.micro	-	View alarms

Instance: i-013e0d6f24e7f869b (ASG_exp1_sys2_fromAMI)

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

Instance summary

Instance ID i-013e0d6f24e7f869b (ASG_exp1_sys2_fromAMI)	Public IPv4 address 43.205.198.28 [open address]	Private IPv4 addresses 172.31.41.56
IPv6 address -	Instance state Pending	Public IPv4 DNS ec2-43-205-198-28.ap-south-1.compute.amazonaws.com [open address]

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AMI can be used for generating copies or for migration of a whole system to new server

Task → ASG
→ One way

select an instance then in Actions

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EC2 Dashboard EC2 Global View Events Instances Instances Instance Types Launch Templates Spot Requests Savings Plans Reserved Instances Dedicated Hosts Capacity Reservations New Images AMIs AMI Catalog Elastic Block Store Volumes Snapshots Lifecycle Manager CloudShell Feedback

Instances (1/4) Info Connect Instance state Any state

Name Instance ID Instance state Instance type

- ELB_exp_inst_1 i-08fce02afddbf804b
- ELB_exp_inst_2 i-0ce17aedb50354aa5
- ASG_exp1_sys1** i-0f5db2fa27af3b2ea
- ASG_exp1_sys... i-013e0d6f24e7f869b

Actions ▾ Launch instances ▾

- Connect
- View details
- Manage instance state
- Instance settings**
- Networking
- Security
- Image and templates
- Monitor and troubleshoot

Tags

Instance: i-0f5db2fa27af3b2ea (ASG_exp1)

Details Status and alarms Monitoring

Instance summary Info

Instance ID: i-0f5db2fa27af3b2ea (ASG_exp1_sys1)

Public IPv4 address: 172.31.32.199

Private IP DNS name (IPv4 only): ec2-65-2-38-87.ap-south-1.compute.amazonaws.com

IPv6 address: -

Hostname type: ID name in 172.31.32.199.ap-south-1

Edit user data

Allow tags in instance metadata

Manage tags

Modify instance metadata options

Private IP DNS name (IPv4 only): 172.31.32.199

Public IPv4 address: 172.31.32.199

Public IPv4 DNS: ec2-65-2-38-87.ap-south-1.compute.amazonaws.com

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→ Secondary

Creating a template after already creating a template

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EC2 Dashboard EC2 Global View Events Instances Instances Instance Types Launch Templates Spot Requests Savings Plans Reserved Instances Dedicated Hosts Capacity Reservations New Images AMIs AMI Catalog Elastic Block Store Volumes Snapshots Lifecycle Manager Network & Security Security Groups Elastic IPs Placement Groups Key Pairs CloudShell Feedback

Instances (1/4) Info Connect Instance state Any state

Name Instance ID Instance state Instance type

- ELB_exp_inst_1 i-08fce02afddbf804b
- ELB_exp_inst_2 i-0ce17aedb50354aa5
- ASG_exp1_sys1** i-0f5db2fa27af3b2ea
- ASG_exp1_sys... i-013e0d6f24e7f869b

Actions ▾ Launch instances ▾

- Connect
- View details
- Manage instance state
- Instance settings
- Networking
- Security
- Create image**
- Image and templates
- Monitor and troubleshoot

Create template from instance

Launch more like this

Instance: i-0f5db2fa27af3b2ea (ASG_exp1_sys1)

Details Status and alarms Monitoring Security Networking Storage Tags

Instance summary Info

Instance ID: i-0f5db2fa27af3b2ea (ASG_exp1_sys1)

Public IPv4 address: 65.2.38.87

Private IP DNS name (IPv4 only): ec2-65-2-38-87.ap-south-1.compute.amazonaws.com

IPv6 address: -

Hostname type: ID name in 172.31.32.199.ap-south-1

Public IPv4 address: 172.31.32.199

Private IP DNS name (IPv4 only): 172.31.32.199

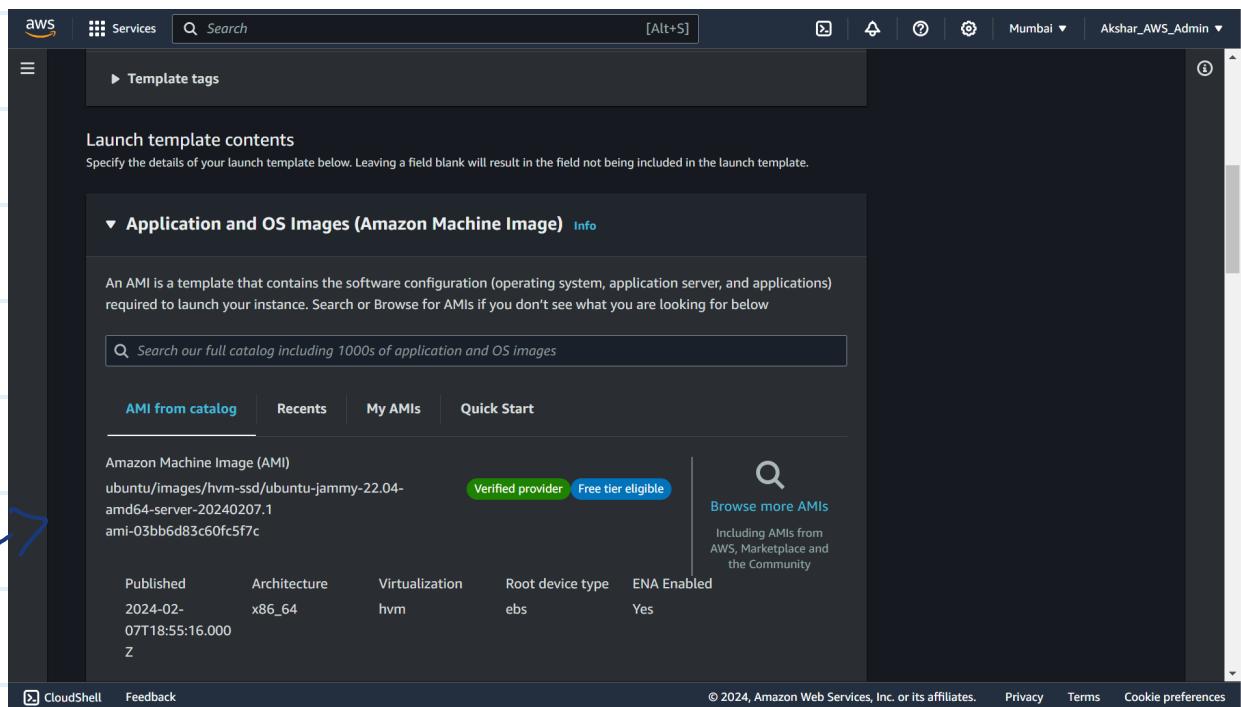
Public IPv4 DNS: ec2-65-2-38-87.ap-south-1.compute.amazonaws.com

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Action then

Create template e from instance

Template can be created using EC2 instance when this is done template with just OS or AMI image when this is done template is created with OS and third party packages



You can select OS or AMIs here select the AMI we created earlier

This screenshot shows the AWS EC2 instance creation wizard. It includes sections for selecting an instance type (t2.micro), specifying a key pair (ASG_exp1_key), and defining network settings. A handwritten note on the right side of the screen reads: "instance type keypair everything will be set from AMI".

This screenshot continues the AWS EC2 instance creation wizard. It shows the "Advanced details" section and the "Summary" section, which lists the selected software image (Canonical, Ubuntu, 22.04 LTS), instance type (t2.micro), security group (launch-wizard-3), and storage (1 volume(s) - 10 GiB). A blue circle highlights the "Create launch template" button at the bottom.

This screenshot shows the success page after creating a launch template. It displays a green success message: "Successfully created ASG_exp1_AMI_template(lt-0889fbab23d4ad97)". Below this, there are sections for "Next Steps" and links to "Launch an instance", "Create an Auto Scaling group from your template", and "Create a Spot Fleet". A handwritten note on the right side of the screen reads: "Launch an instance".

To view launch templates
from this you can create EC2 instance or ASG

The screenshot shows the AWS EC2 Launch Templates page. The left sidebar is expanded to show 'Launch Templates' under 'Instances'. A single launch template is listed in the main table:

Launch Template ID	Launch Template Name	Default Version	Latest Version	Create Time
lt-0889fbab23d4adc97	ASG_exp1_AMI_template	1	1	2024-03-1

The screenshot shows the AWS Auto Scaling Groups page. The left sidebar is expanded to show 'Auto Scaling Groups' under 'Auto Scaling'. A blue oval highlights the 'Auto Scaling Groups' section.

↑
No go to
Auto scaling
Groups

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Amazon EC2 Auto Scaling
helps maintain the availability of your applications

Get started with EC2 Auto Scaling by creating an Auto Scaling group.

Create Auto Scaling group

Auto Scaling groups are collections of Amazon EC2 instances that enable automatic scaling and fleet management features. These features help you maintain the health and availability of your applications.

How it works

Pricing

Amazon EC2 Auto Scaling features have no additional fees beyond the service fees for Amazon EC2, CloudWatch (for scaling policies), and the other AWS

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Step 1 Choose launch template

Step 2 Choose instance launch options

Step 3 - optional Configure advanced options

Step 4 - optional Configure group size and scaling

Step 5 - optional Add notifications

Step 6 - optional Add tags

Step 7 Review

Choose launch template Info

Specify a launch template that contains settings common to all EC2 instances that are launched by this Auto Scaling group.

Name

Auto Scaling group name
Enter a name to identify the group.
ASG_exp1_AutoScalingGroup

Must be unique to this account in the current Region and no more than 255 characters.

Launch template Info

For accounts created after May 31, 2023, the EC2 console only supports creating Auto Scaling groups with launch templates. Creating Auto Scaling groups with launch configurations is not recommended but still available via the CLI and API until December 31, 2023.

Launch template
Choose a launch template that contains the instance-level settings, such as the Amazon Machine Image (AMI), instance type, key pair, and security groups.
ASG_exp1_AMI_template

Create a launch template Info

Version

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Name
your
group

template

Choose a launch template that contains the instance-level settings, such as the Amazon Machine Image (AMI), instance type, key pair, and security groups.

ASG_exp1_AMI_template

Create a launch template Info

Default (1) Version Create a launch template version

Description template created from AMI

AMI ID ami-03bb6d83c60fc5f7c

Key pair name ASG_exp1_key

Additional details Storage (volumes) /dev/sda1

Date created Fri Mar 15 2024 12:30:54 GMT+0530 (India Standard Time)

Instance type t2.micro

Security groups -

Request Spot Instances No

Security group IDs sg-019d965a01a55ea97

Cancel Next

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for when
there are
multiple versions
to same Temp.

Next

Network Info

For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.

VPC
Choose the VPC that defines the virtual network for your Auto Scaling group.

vpc-0535997132a5b9073
172.31.0.0/16 Default

Create a VPC

Availability Zones and subnets
Define which availability zones and subnets your Auto Scaling group can use in the chosen VPC.

Select Availability Zones and subnets

ap-south-1a | subnet-0747fb372c8d6ae59
172.31.32.0/20 Default

ap-south-1b | subnet-0e376b5a6506458d2
172.31.0.0/20 Default

ap-south-1c | subnet-0c46086ef0deca5e5
172.31.16.0/20 Default

Create a subnet

⚠ Your requested instance type (t2.micro) is not available in 1 Availability Zone. You may need to change the instance type or add more subnets.

Select all availability zones

To add load balancers to our ASG

Configure advanced options - optional

Choose a load balancer to distribute incoming traffic for your application across instances to make it more reliable and easily scalable. You can also set options that give you more control over health check replacements and monitoring.

Load balancing

Use the options below to attach your Auto Scaling group to an existing load balancer, or to a new load balancer that you define.

No load balancer
Traffic to your Auto Scaling group will not be fronted by a load balancer.

Attach to an existing load balancer
Choose from your existing load balancers.

Attach to a new load balancer
Quickly create a basic load balancer to attach to your Auto Scaling group.

Health checks

Health checks increase availability by replacing unhealthy instances. When you use multiple health checks, all are evaluated, and if at least one fails, instance replacement occurs.

EC2 health checks
 Always enabled

Additional health check types - optional

Attach an existing load balancer

Load balancing Info

Use the options below to attach your Auto Scaling group to an existing load balancer, or to a new load balancer that you define.

- No load balancer
Traffic to your Auto Scaling group will not be fronted by a load balancer.
- Attach to an existing load balancer
Choose from your existing load balancers.
- Attach to a new load balancer
Quickly create a basic load balancer to attach to your Auto Scaling group.

Attach to an existing load balancer

Select the load balancers that you want to attach to your Auto Scaling group.

- Choose from your load balancer target groups
This option allows you to attach Application, Network, or Gateway Load Balancers.
- Choose from Classic Load Balancers

Existing load balancer target groups

Only instance target groups that belong to the same VPC as your Auto Scaling group are available for selection.

Select target groups

Health checks

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add existing target group or create new.

health check config leave default + 2

EC2 health checks

Always enabled

Additional health check types - optional Info

Turn on Elastic Load Balancing health checks Recommended
Elastic Load Balancing monitors whether instances are available to handle requests. When it reports an unhealthy instance, EC2 Auto Scaling can replace it on its next periodic check.

Health check grace period Info
This time period delays the first health check until your instances finish initializing. It doesn't prevent an instance from terminating when placed into a non-running state.
300 seconds

Additional settings

Monitoring Info
 Enable group metrics collection within CloudWatch

Default instance warmup Info
The amount of time that CloudWatch metrics for new instances do not contribute to the group's aggregated instance metrics, as their usage data is not reliable yet.
 Enable default instance warmup

Next

Cancel Skip to review Previous Next

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Next.

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Step 4 - optional
Configure group size and scaling

Step 5 - optional
Add notifications

Step 6 - optional
Add tags

Step 7
Review

Desired capacity type
Choose the unit of measurement for the desired capacity value. vCPUs and Memory(GiB) are only supported for mixed instances groups configured with a set of instance attributes.

Units (number of instances)

Desired capacity
Specify your group size.
4

Scaling Info
You can resize your Auto Scaling group manually or automatically to meet changes in demand.

Scaling limits
Set limit* on how much your desired capacity can be increased or decreased.

Min desired capacity
1 Equal or less than desired capacity

Max desired capacity
10 Equal or greater than desired capacity

Automatic scaling - optional
Choose whether to use a target tracking policy | Info
You can set up other metric-based scaling policies and scheduled scaling after creating your Auto Scaling group.

No scaling policies
Your Auto Scaling group will remain at its initial size and will not dynamically resize to meet demand.

Target tracking scaling policy
Choose a CloudWatch metric and target value and let the scaling policy adjust the desired capacity in proportion to the metric's value.

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A hand-drawn note on the right side of the screen says: *L max min EC2*

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You can set up other metric-based scaling policies and scheduled scaling after creating your Auto Scaling group.

No scaling policies
Your Auto Scaling group will remain at its initial size and will not dynamically resize to meet demand.

Target tracking scaling policy
Choose a CloudWatch metric and target value and let the scaling policy adjust the desired capacity in proportion to the metric's value.

Instance maintenance policy - new Info
Control your Auto Scaling group's availability during instance replacement events. This includes health checks, instance refreshes, maximum instance lifetime features and events that happen automatically to keep your group balanced, called rebalancing events.

Control availability and cost during replacement events
An instance maintenance policy determines how much availability your application has when EC2 Auto Scaling replaces instances. It also establishes guardrails that limit the amount of capacity that can be added or removed when replacing instances.

Choose a replacement behavior depending on your availability requirements

Mixed behavior
 No policy
For rebalancing events, new instances will launch before terminating others. For all other events, instances terminate and launch at the same time.

Prioritize availability
 Launch before terminating
Launch new instances and wait for them to be ready before terminating others. This allows you to go above your desired capacity by a given percentage and may

Control costs
 Terminate and launch
Terminate instances at the same time. This allows you to go below your desired capacity by a given percentage and may temporarily reduce availability.

Flexible
 Custom behavior
Set custom values for the minimum and maximum amount of available capacity. This gives you greater flexibility in setting how far below and over your desired capacity EC2 Auto Scaling replaces instances.

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scroll down ↓ Next
do

Next step is Notificationservice which is optional
but to enable it here we first need to have this service

EC2 > Auto Scaling groups > Create Auto Scaling group

Step 1 Choose launch template

Step 2 Choose instance launch options

Step 3 - optional Configure advanced options

Step 4 - optional Configure group size and scaling

Step 5 - optional Add notifications

Step 6 - optional Add tags

Step 7 Review

Add notifications - optional

Send notifications to SNS topics whenever Amazon EC2 Auto Scaling launches or terminates the EC2 instances in your Auto Scaling group.

Notification 1

Add notification

Remove

Cancel Skip to review Previous Next

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Created

SNS (Simple notification service)

Services

App Integration

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Recently visited

Favorites

All services

- Analytics
- Application Integration
- Blockchain
- Business Applications
- Cloud Financial Management
- Compute
- Containers
- Customer Enablement
- Database
- Developer Tools
- End User Computing
- Front-end Web & Mobile
- Game Development

Recently visited

EC2 Virtual Servers in the Cloud

Console Home View resource insights, service shortcuts, and feature updates

Remove

Previous Next

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The screenshot shows the AWS Services Catalog interface. On the left, a sidebar lists various AWS services under 'All services'. In the main content area, a card for 'Simple Notification Service' is displayed. The card includes a brief description: 'SNS managed message topics for Pub/Sub messaging', a 'Remove' button, and navigation buttons for 'Previous' and 'Next'. Handwritten annotations include a blue circle around the 'Simple Notification Service' title and a blue arrow pointing from it to the word 'SNS' at the bottom of the page.

SNS

The screenshot shows the Amazon Simple Notification Service (SNS) landing page. The main heading is 'Amazon Simple Notification Service' with the subtitle 'Pub/sub messaging for microservices and serverless applications.' Below this, a paragraph describes SNS as a highly available, durable, secure, fully managed pub/sub messaging service. A 'Create topic' button is highlighted with a blue circle and an annotation 'Create topic' with an arrow pointing to it. Another annotation 'CreatedforASG' is placed over the 'Topic name' input field. The page also features sections for 'Benefits and features' and 'Pricing'.

both shcos Lynch working mech for req handling

Details

Type [Info](#)
Topic type cannot be modified after topic is created

FIFO (first-in, first-out)

- Strictly-preserved message ordering
- Exactly-once message delivery
- High throughput, up to 300 publishes/second
- Subscription protocols: SQS, Lambda, HTTP, SMS, email, mobile application endpoints

Standard

- Best-effort message ordering
- At-least once message delivery
- Highest throughput in publishes/second
- Subscription protocols: SQS, Lambda, HTTP, SMS, email, mobile application endpoints

Name

Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (_).

Display name - optional [Info](#)
To use this topic with SMS subscriptions, enter a display name. Only the first 10 characters are displayed in an SMS message.

Maximum 100 characters.

Encryption - optional
Amazon SNS provides in-transit encryption by default. Enabling server-side encryption adds at-rest encryption to your topic.

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Scrolldown to ↴

Data protection policy - optional [Info](#)
This policy defines which sensitive data to monitor and to prevent from being exchanged via your topic.

Delivery policy (HTTP/S) - optional [Info](#)
The policy defines how Amazon SNS retries failed deliveries to HTTP/S endpoints. To modify the default settings, expand this section.

Delivery status logging - optional [Info](#)
These settings configure the logging of message delivery status to CloudWatch Logs.

Tags - optional
A tag is a metadata label that you can assign to an Amazon SNS topic. Each tag consists of a key and an optional value. You can use tags to search and filter your topics and track your costs. [Learn more](#)

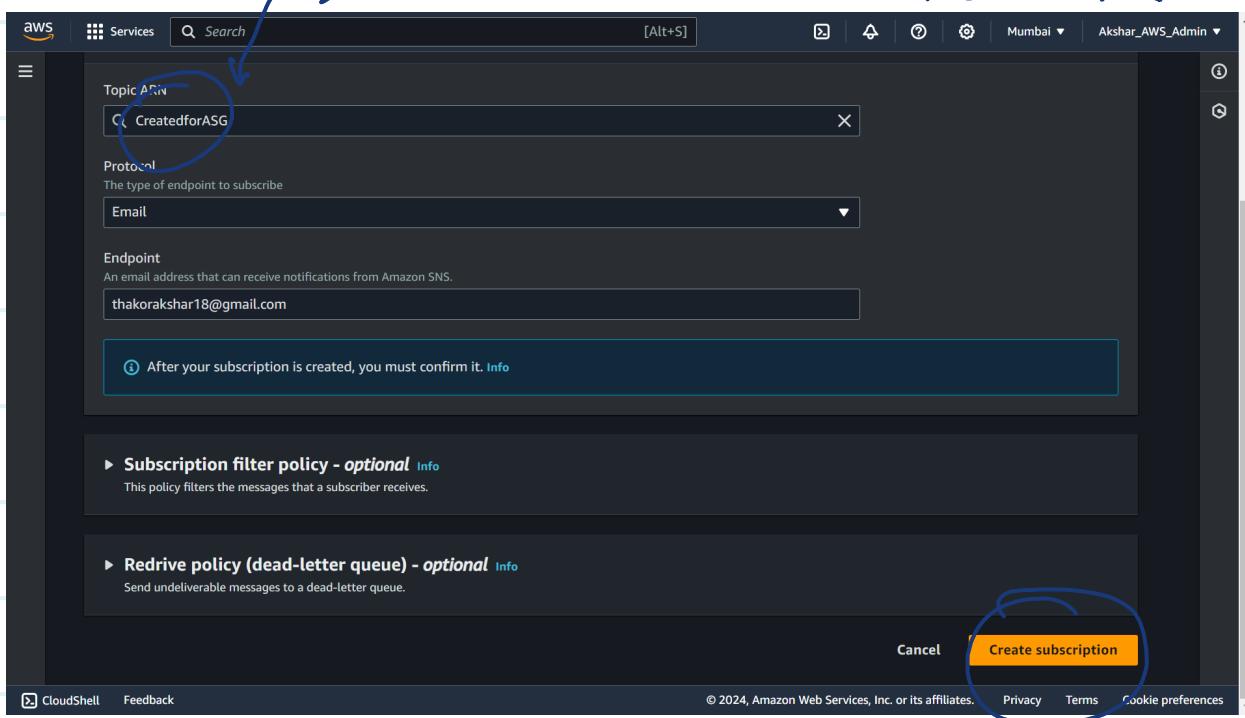
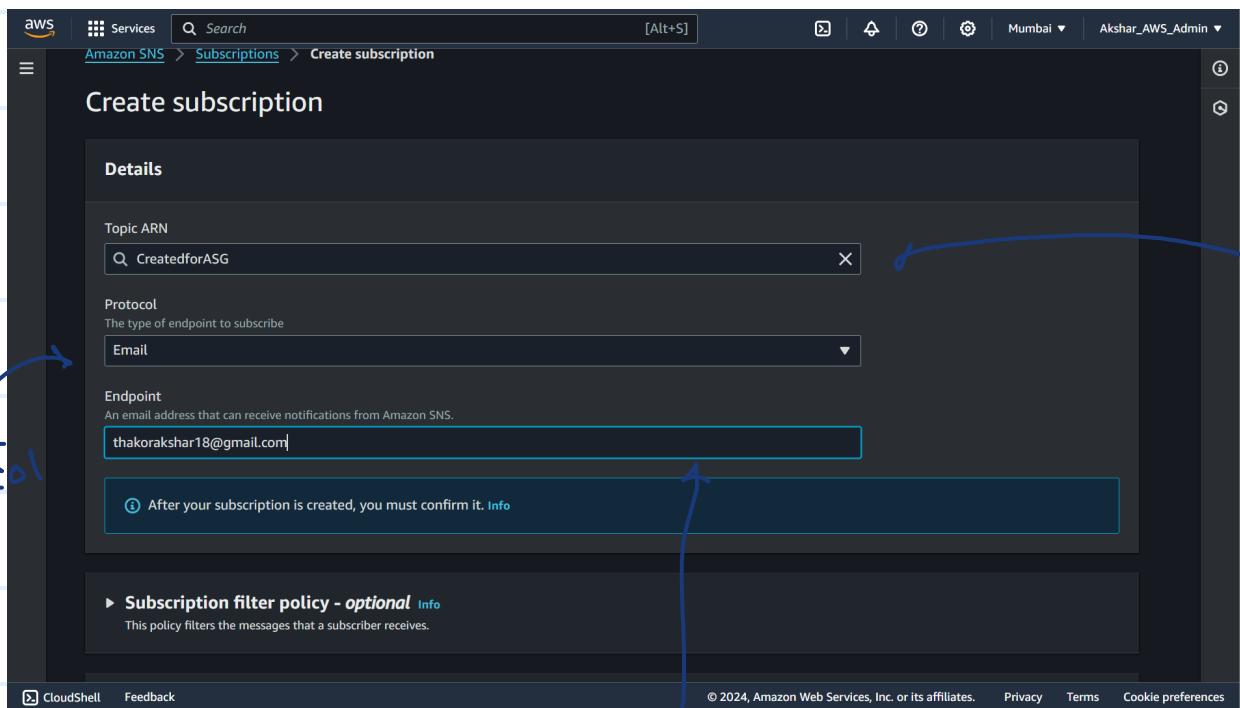
Active tracing - optional [Info](#)
Use AWS X-Ray active tracing for this topic to view its traces and service map in Amazon CloudWatch. Additional costs apply.

Cancel **Create topic**

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The screenshot shows the AWS SNS Topics page. A green success message at the top states: "Topic CreatedforASG created successfully. You can create subscriptions and send messages to them from this topic." Below this, the "CreatedforASG" topic details are shown, including its Name (CreatedforASG), Display name (NotificationServiceforASG), ARN (arn:aws:sns:ap-south-1:058264535684:CreatedforASG), and Type (Standard). The left sidebar has a "Subscriptions" section circled in blue with handwritten notes "Subscription" and "Subscriptions".

The screenshot shows the AWS SNS Subscriptions page. It displays a table titled "Subscriptions (0)" with columns: ID, Endpoint, Status, Protocol, and Topic. A search bar and pagination controls are also present. A blue arrow points to the "Create subscription" button. Handwritten notes on the right side of the screen say "To create subscript!" and "for where we want this service".



Now go back to ASG setup you will see your SNS in dropdown

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EC2 > Auto Scaling groups > Create Auto Scaling group

Step 1 Choose launch template

Step 2 Choose instance launch options

Step 3 - optional Configure advanced options

Step 4 - optional Configure group size and scaling

Step 5 - optional Add notifications

Step 6 - optional Add tags

Step 7 Review

Add notifications - optional Info

Send notifications to SNS topics whenever Amazon EC2 Auto Scaling launches or terminates the EC2 instances in your Auto Scaling group.

Notification 1

SNS Topic
Choose an SNS topic to use to send notifications
CreatedforASG (thakorakshar18@gmail.com)

Event types
Notify subscribers whenever instances
 Launch
 Terminate
 Fail to launch
 Fail to terminate

Add notification Remove

Cancel Skip to review Previous Next

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Select this

Next-Next-Next- till Review page

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EC2 > Auto Scaling groups > Create Auto Scaling group

Step 1 Choose launch template

Step 2 Choose instance launch options

Step 3 - optional Configure advanced options

Step 4 - optional Configure group size and scaling

Step 5 - optional Add notifications

Step 6 - optional Add tags

Step 7 Review

Review Info

Step 1: Choose launch template Edit

Group details

Auto Scaling group name ASG_exp1_Autoscalinggroup

Launch template

Launch template ASG_exp1_AMI_template Version Default Description template created from AMI

Step 2: Choose instance launch options Edit

Network

Network VPC

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↓ scroll down

Step 5: Add notifications

Notifications

Notification 1
SNS Topic
CreatedforASG (thakorakshar18@gmail.com)

Event types
Launch
Terminate
Fail to launch
Fail to terminate

Step 6: Add tags

Tags (0)

Key	Value
Tag new instances	

No tags

Create Auto Scaling group

create

auto scaling
group.

Once this is done web deployment process same
as ELB access through this ASG's load balancer's
DNS and it will take care of load of requests.

Instances (8) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
ASG_exp1_sys1	i-009ce177769c80ac4	Running	t2.micro	2/2 checks passed	View alarms
ASG_exp1_sys1	i-0e9f83a0d4dc76703	Running	t2.micro	2/2 checks passed	View alarms
ELB_exp_inst_1	i-08fce02afddbf804b	Terminated	t2.micro	-	View alarms
ELB_exp_inst_2	i-0ce17aedb50354aa5	Terminated	t2.micro	-	View alarms
ASG_exp1_sys1	i-0f5db2fa27af3b2ea	Running	t2.micro	2/2 checks passed	View alarms
ASG_exp1_sys...	i-013e0df6f24e7f869b	Terminated	t2.micro	-	View alarms
ASG_exp1_sys1	i-00e674c6a36b65ec9	Running	t2.micro	2/2 checks passed	View alarms
ASG_exp1_sys1	i-02af3c3f69fa44ad4	Running	t2.micro	2/2 checks passed	View alarms

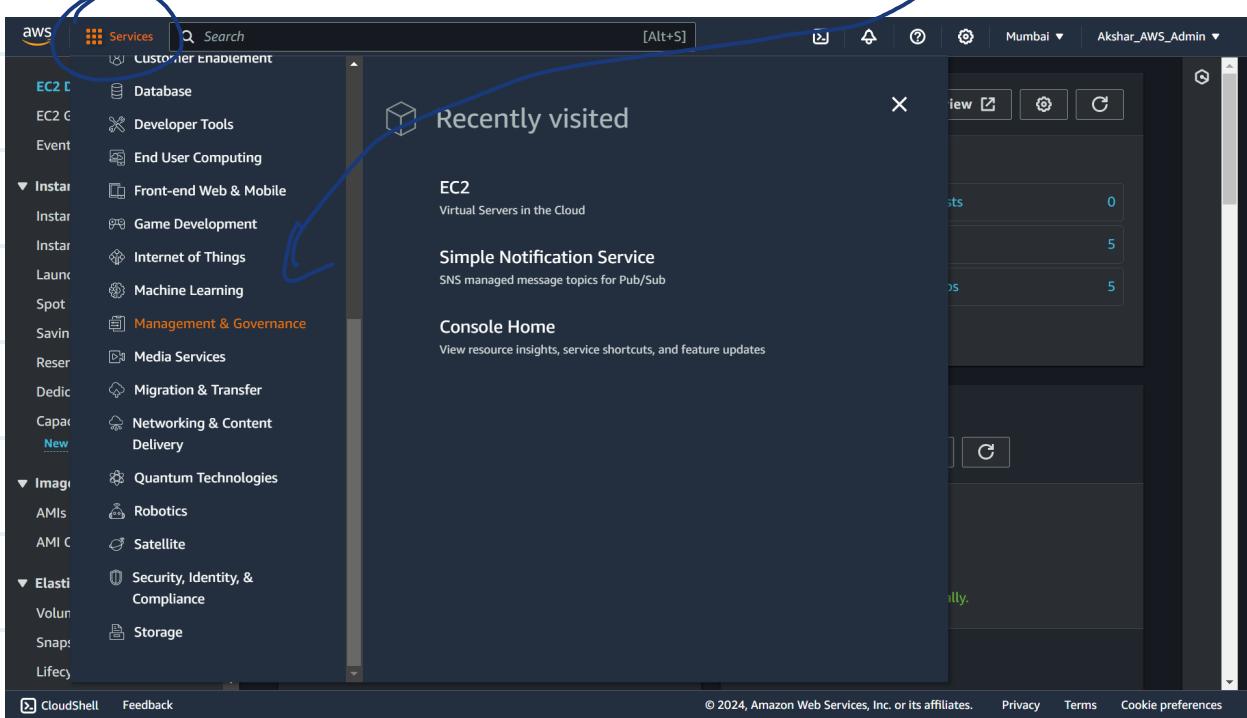
Select an instance

As you
can
see
additional
instances
are
created

But despite zero load because we had 4 as desired instances we have them regardless to stop this unnecessary generation we will use another service known as cloudwatch which will alarm whenever machine underloaded or overloaded and manage creation or termination of the EC2 instances

Cloud Management

Services and management & governance



Servicess Search [Alt+S] Mumbai Akshar_AWS_Admin

Customer Enablement

- EC2
- Database
- Developer Tools
- Event
- End User Computing
- Front-end Web & Mobile
- Game Development
- Internet of Things
- Machine Learning
- Management & Governance
- Media Services
- Migration & Transfer
- Networking & Content Delivery
- Quantum Technologies
- Robotics
- Satellite
- Security, Identity, & Compliance
- Storage

AWS Auto Scaling
AWS Auto Scaling enables you to quickly scale your entire application on AWS

AWS Chatbot
ChatOps for AWS

CloudFormation
Create and Manage Resources with Templates

CloudTrail
Track User Activity and API Usage

CloudWatch
Monitor Resources and Application

AWS Compute Optimizer
Recommend optimal AWS Compute resources for your workloads

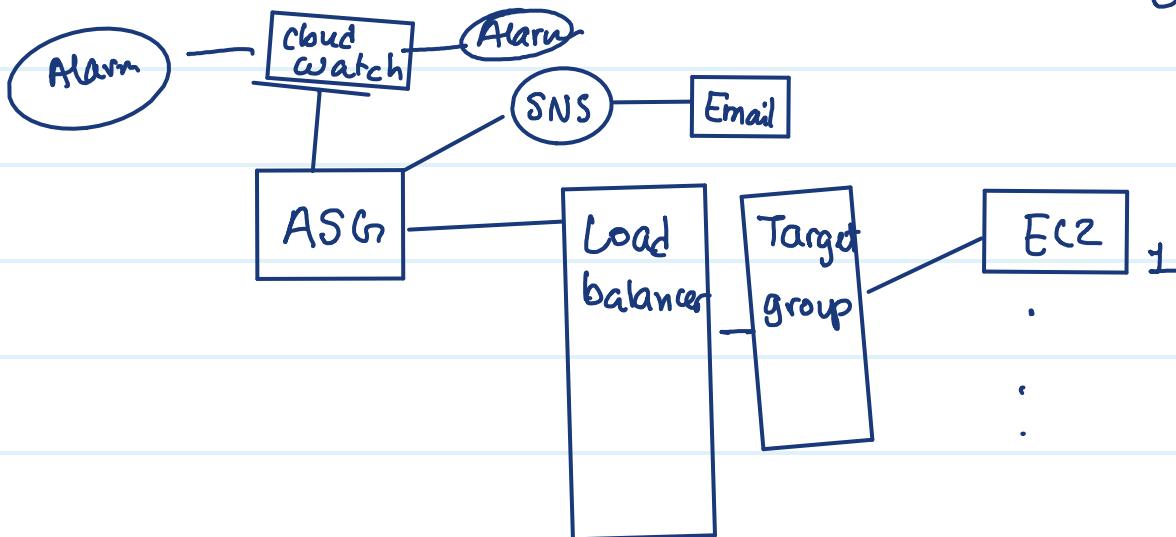
AWS Config
Track Resource Inventory and Changes

Control Tower
The easiest way to set up and govern a secure, compliant multi-account environment

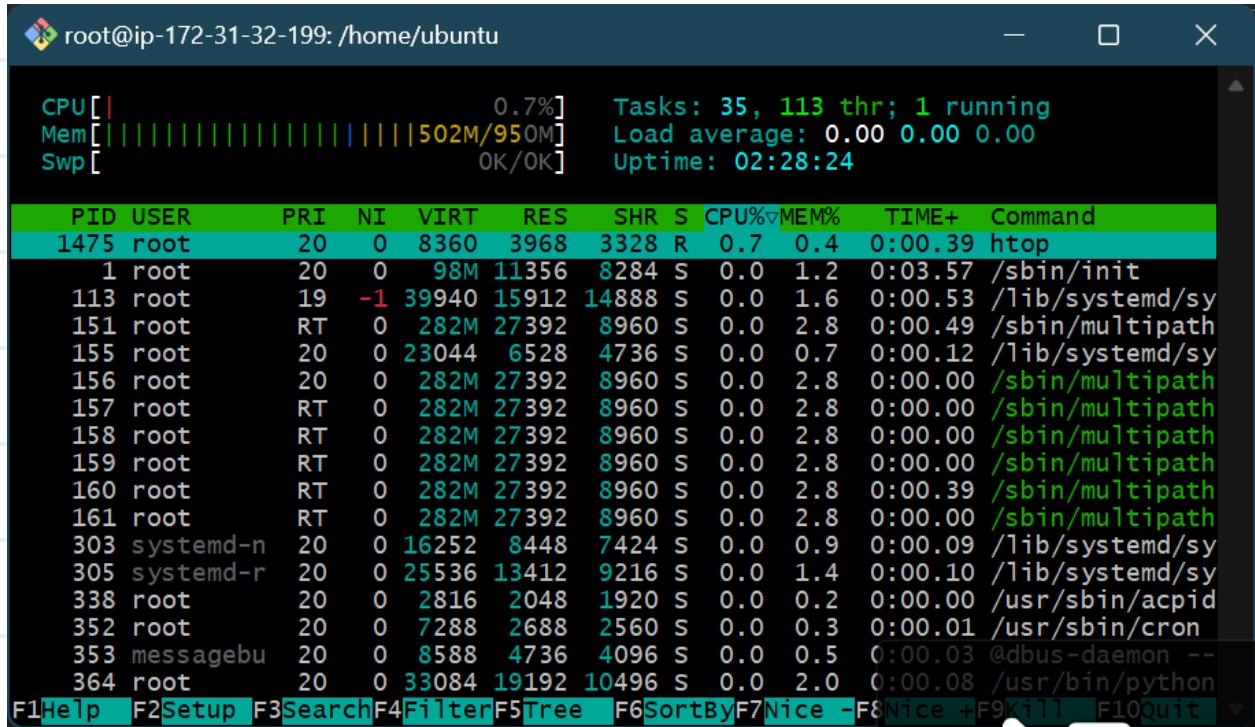
Amazon Grafana
Fully managed Grafana service for interactive data visualizations and

View

Through all above services we are making infra that looks in abstract like following



In cloudwatch we will put Alarm depending on CPU usage of a pc we can see a pc's CPU usage through htop command across a created instance and then run htop on it to see.



The screenshot shows an htop terminal window with the following details:

- System Statistics:**
 - CPU: 0.7%
 - Mem: 502M/950M (OK/OK)
 - Tasks: 35, 113 thr; 1 running
 - Load average: 0.00 0.00 0.00
 - Uptime: 02:28:24
- Process List:** A table showing processes sorted by CPU usage. The columns are: PID, USER, PRI, NI, VIRT, RES, SHR, S, CPU%, MEM%, TIME+, and Command. The top row highlights the header.
- Bottom Bar:** Function keys for htop: F1Help, F2Setup, F3Search, F4Filter, F5Tree, F6SortBy, F7Nice -F8Nice +F9Kill, and F10Quit.

PID	USER	PRI	NI	VIRT	RES	SHR	S	CPU%	MEM%	TIME+	Command
1475	root	20	0	8360	3968	3328	R	0.7	0.4	0:00.39	htop
1	root	20	0	98M	11356	8284	S	0.0	1.2	0:03.57	/sbin/init
113	root	19	-1	39940	15912	14888	S	0.0	1.6	0:00.53	/lib/systemd/sy
151	root	RT	0	282M	27392	8960	S	0.0	2.8	0:00.49	/sbin/multipath
155	root	20	0	23044	6528	4736	S	0.0	0.7	0:00.12	/lib/systemd/sy
156	root	20	0	282M	27392	8960	S	0.0	2.8	0:00.00	/sbin/multipath
157	root	RT	0	282M	27392	8960	S	0.0	2.8	0:00.00	/sbin/multipath
158	root	RT	0	282M	27392	8960	S	0.0	2.8	0:00.00	/sbin/multipath
159	root	RT	0	282M	27392	8960	S	0.0	2.8	0:00.00	/sbin/multipath
160	root	RT	0	282M	27392	8960	S	0.0	2.8	0:00.39	/sbin/multipath
161	root	RT	0	282M	27392	8960	S	0.0	2.8	0:00.00	/sbin/multipath
303	systemd-n	20	0	16252	8448	7424	S	0.0	0.9	0:00.09	/lib/systemd/sy
305	systemd-r	20	0	25536	13412	9216	S	0.0	1.4	0:00.10	/lib/systemd/sy
338	root	20	0	2816	2048	1920	S	0.0	0.2	0:00.00	/usr/sbin/acpid
352	root	20	0	7288	2688	2560	S	0.0	0.3	0:00.01	/usr/sbin/cron
353	messagebu	20	0	8588	4736	4096	S	0.0	0.5	0:00.03	@dbus-daemon --
364	root	20	0	33084	19192	10496	S	0.0	2.0	0:00.08	/usr/bin/python

To create alarm go to cbudewatch service and.

The screenshot shows the AWS CloudWatch Alarms interface. On the left, a sidebar lists various monitoring options like Logs, Metrics, and Events. Under the Alarms section, there are two buttons: 'In alarm' (highlighted with a blue circle) and 'All alarms'. The main area displays a message: 'No alarms' and 'No alarms to display'. At the top right, there is a prominent orange 'Create alarm' button, which is also circled in blue. Handwritten text 'Create alarm' is written vertically along the right edge of the screenshot.

This screenshot shows the 'Specify metric and conditions' step of the 'Create alarm' wizard. On the left, a sidebar lists four steps: Step 1 (Specify metric and conditions, highlighted with a blue circle), Step 2 (Configure actions), Step 3 (Add name and description), and Step 4 (Preview and create). The main area is titled 'Specify metric and conditions' and contains a 'Metric' section with a 'Select metric' button. Handwritten text 'Selecting metric for alarm.' is written across the bottom center of the screenshot. The top right corner shows the 'Cancel' and 'Next' buttons.

Screenshot of the AWS CloudWatch Metrics console showing the "Create alarm" step. The "Select metric" dialog is open, displaying metrics from the Mumbai region. A blue circle highlights the "EC2" category, which contains 187 metrics. A handwritten note "Select EC2" is written next to the highlighted area.

Metrics (498)

Category	Metric Type	Count
ApplicationELB	Logs	94
EBS	Logs	90
Events	Logs	1
EC2	Logs	187
Logs	Logs	2
SNS	Logs	4

Select a single metric to continue

Screenshot of the AWS CloudWatch Metrics console showing the "Create alarm" step. The "Select metric" dialog is open, displaying metrics from the Mumbai region. A blue circle highlights the "By Auto Scaling Group" category, which contains 17 metrics. A handwritten note "by auto scaling group." is written below the highlighted area.

Metrics (187)

Category	Metric Type	Count
By Auto Scaling Group	Logs	17
FC2	Logs	170
Per-Instance Metrics	Logs	170

Select a single metric to continue

by auto scaling group.

CloudWatch > Alarms > Create alarm

Step 1 Specify

Step 2 Configuration

Step 3 Add name

Step 4 Preview

Select metric

Browse Multi source query Graphed metrics Options Source

Add math Add query

Metric	Unit	Alarms
ASG_exp1_Autoscalinggroup	CPUSurplusCreditsCharged ⓘ	No alarms
ASG_exp1_Autoscalinggroup	CPUCreditBalance ⓘ	No alarms
ASG_exp1_Autoscalinggroup	CPUSurplusCreditBalance ⓘ	No alarms
ASG_exp1_Autoscalinggroup	DiskReadOps ⓘ	No alarms
ASG_exp1_Autoscalinggroup	CPUUtilization ⓘ	No alarms
ASG_exp1_Autoscalinggroup	NetworkPacketsIn ⓘ	No alarms
ASG_exp1_Autoscalinggroup	NetworkIn ⓘ	No alarms

Cancel Select a single metric to continue

Select
CPU
utilization

CloudWatch > Alarms > Create alarm

Step 1 Specify

Step 2 Configuration

Step 3 Add name

Step 4 Preview

Select metric

Browse Multi source query Graphed metrics (1) Options Source

Add math Add query

Metric	Unit	Alarms
ASG_exp1_Autoscalinggroup	CPUSurplusCreditsCharged ⓘ	No alarms
ASG_exp1_Autoscalinggroup	CPUCreditBalance ⓘ	No alarms
ASG_exp1_Autoscalinggroup	CPUSurplusCreditBalance ⓘ	No alarms
ASG_exp1_Autoscalinggroup	DiskReadOps ⓘ	No alarms
ASG_exp1_Autoscalinggroup	CPUUtilization ⓘ	No alarms
ASG_exp1_Autoscalinggroup	NetworkPacketsIn ⓘ	No alarms
ASG_exp1_Autoscalinggroup	NetworkIn ⓘ	No alarms

Cancel Select metric

select
metric

Step 4
Preview and create

Percent

1.78

0.927

0.074

06:30 07:30 08:30

CPUUtilization

Namespace: AWS/EC2
Metric name: CPUUtilization
AutoScalingGroupName: ASG_exp1_Autoscalinggroup
Statistic: Average
Period: 5 minutes

Conditions

Threshold type:

- Static: Use a value as a threshold
- Anomaly detection: Use a band as a threshold

Whenever CPUUtilization is... Define the alarm condition.

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5 minute
if less
it's
changeable

CPUUtilization

Average

Period: 5 minutes

Conditions

Threshold type:

- Static: Use a value as a threshold
- Anomaly detection: Use a band as a threshold

Whenever CPUUtilization is... Define the alarm condition.

Greater: > threshold

Greater/Equal: >= threshold

Lower/Equal: <= threshold

Lower: < threshold

than... Define the threshold value: 75 Must be a number

Additional configuration

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config
this

then
next

This is for upper limit
 ≥ 75

make another for lower limit
alarm
 ≤ 60

Notification

Alarm state trigger
Define the alarm state that will trigger this action.

In alarm
The metric or expression is outside of the defined threshold.

OK
The metric or expression is within the defined threshold.

Insufficient data
The alarm has just started or not enough data is available.

Remove

Send a notification to the following SNS topic
Define the SNS (Simple Notification Service) topic that will receive the notification.

Select an existing SNS topic

Create new topic

Use topic ARN to notify other accounts

Send a notification to...

CreatedforASG X

Only topics belonging to this account are listed here. All persons and applications subscribed to the selected topic will receive notifications.

Email (endpoints)
thakorakshar18@gmail.com - View in SNS Console [View]

Add notification

Lambda action

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Scrolldown

Add Lambda action

Auto Scaling action

EC2 action

This action is only available for EC2 Per-Instance Metrics.
[Add EC2 action](#)

Systems Manager action [Info \[View\]](#)

This action will create an Incident or OpsItem in Systems Manager when the alarm is **In alarm** state.
[Add Systems Manager action](#)

Cancel Previous Next

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Next

Add name and description

Name and description

Alarm name

Alarm description - optional [View formatting guidelines](#)

Edit **Preview**

This is an H1
double asterisks will produce strong character
This is [an example](https://example.com/) inline link.

Up to 1024 characters (0/1024)

Markdown formatting is only applied when viewing your alarm in the console. The description will remain in plain text in the alarm notifications.

Cancel Previous **Next**

Preview create
go scroll down

Additional configuration

Step 2: Configure actions

Actions

Notification
When in alarm, send a notification to "CreatedforASG"

Step 3: Add name and description

Name and description

Name
h

Description
-

Cancel Previous **Create alarm**

Make another alarm for lower limit CPU Utili ≤ 40

115

Then Go to EC2 dashboard again go to Scaling group

The screenshot shows the AWS EC2 Dashboard. The left sidebar is expanded, showing categories like Images, Auto Scaling, and Auto Scaling Groups. The 'Auto Scaling Groups' item is highlighted with a blue circle. The main content area displays 'Resources' for the Asia Pacific (Mumbai) Region, including lists for Instances (running), Auto Scaling Groups, Dedicated Hosts, Elastic IPs, Instances, Key pairs, Load balancers, Placement groups, Security groups, Snapshots, and Volumes. Below this are sections for 'Launch instance' and 'Service health'. On the right, there are links for 'EC2 Free Tier', 'Account attributes', 'Settings', and 'Explore AWS'.

The screenshot shows the 'Auto Scaling groups' page. The left sidebar is identical to the previous dashboard. The main area shows a table for 'Auto Scaling groups (1/1)'. A row for 'ASG_exp1_Autoscalinggroup' is selected, indicated by a blue circle. Below the table, a detailed view for 'Auto Scaling group: ASG_exp1_Autoscalinggroup' is shown with tabs for Details, Activity, Automatic scaling (circled in blue), Instance management, Monitoring, and Instance refresh. The 'Group details' section shows the auto scaling group name, desired capacity (4), desired capacity type (Units (number of instances)), and Amazon Resource Name (ARN). Handwritten text on the right side of the screen says 'Select your scaling group then select'.

inside that scroll you will find

EC2 > Auto Scaling groups

Auto Scaling groups (1/1) Info

Launch configurations | Launch templates | Actions | Create Auto Scaling group

Search your Auto Scaling groups

Name	Launch template/configuration	Instances	Status
ASG_exp1_Autoscalinggroup	ASG_exp1_AMI_template Version Default	4	-

Auto Scaling group: ASG_exp1_Autoscalinggroup

Dynamic scaling policies (0) Info

No dynamic scaling policies have been created

Dynamic scaling policies use real-time data to scale your group based on configurable metrics.

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create
dynamic
scaling
policy

Select
Simple
scaling

EC2 > Auto Scaling groups > ASG_exp1_Autoscalinggroup

Create dynamic scaling policy

Policy type: Simple scaling

Scaling policy name:

CloudWatch alarm: Choose an alarm that can scale capacity whenever:

Take the action: Add 0 capacity units

And then wait: 300 seconds before allowing another scaling activity

Cancel Create

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Create dynamic scaling policy

Policy type: Simple scaling

Scaling policy name: scale_in_policy

CloudWatch alarm: ASG_cpucti_upper

breaches the alarm threshold: CPUUtilization >= 75 for 1 consecutive periods of 300 seconds for the metric dimensions:

AutoScalingGroupName = ASG_exp1_AutoScalinggroup

Take the action:

Add 2 capacity units

And then wait: 300 seconds before allowing another scaling activity

time to check Utilization again

according to alarm define action above signifies if CPU Util > 75 Add 2 capacity units

Now add another policy for lower limit

Policy type: Simple scaling

Scaling policy name: scale_out_policy

CloudWatch alarm: ASG_cpucti_lower

breaches the alarm threshold: CPUUtilization <= 40 for 1 consecutive periods of 300 seconds for the metric dimensions:

AutoScalingGroupName = ASG_exp1_AutoScalinggroup

Take the action:

Remove 2 capacity units

And then wait: 300 seconds before allowing another scaling activity

Create

After doing this if we go to instances in EC2 dashboard we will see our instances of ASG getting removed one by one as no instance will have load greater than 70% but each instance will get removed in time period of 5 minute as we have set alarm policy to be checked every 5 min]

After sometime we can see two of the instances shutting down as they were Underutilized

The screenshot shows the AWS EC2 Instances page with the following details:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Available
ASG_exp1_sys1	i-009ce177769c80ac4	Shutting-d...	t2.micro	-	View alarms +	ap-sou...
ASG_exp1_sys1	i-0e9f83a0d4dc76703	Running	t2.micro	2/2 checks passed	View alarms +	ap-sou...
ELB_exp_inst_1	i-08fce02afddbf804b	Terminated	t2.micro	-	View alarms +	ap-sou...
ELB_exp_inst_2	i-0ce17aedb50354aa5	Terminated	t2.micro	-	View alarms +	ap-sou...
ASG_exp1_sys1	i-0f5db2fa27af3b2ea	Running	t2.micro	2/2 checks passed	View alarms +	ap-sou...
ASG_exp1_sys1	i-013e0d6f24e7f869b	Terminated	t2.micro	-	View alarms +	ap-sou...
ASG_exp1_sys1	i-00e674c6a36b65ec9	Running	t2.micro	2/2 checks passed	View alarms +	ap-sou...
ASG_exp1_sys1	i-02af3c3f69fa44ad4	Shutting-d...	t2.micro	-	View alarms +	ap-sou...

Instances (8) Info

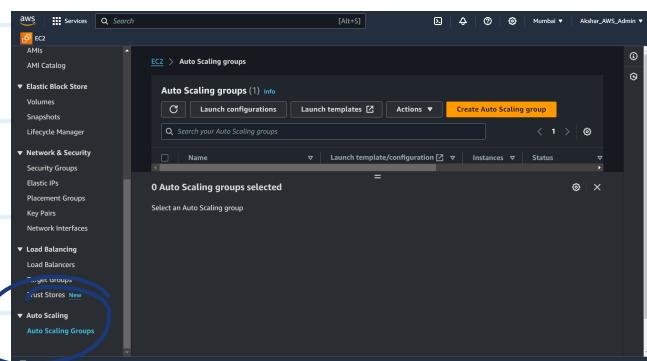
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
ASG_exp1_sys1	i-009ce177769c80ac4	Terminated	t2.micro	-	View alarms	ap-sou...
ASG_exp1_sys1	i-0e9f83a0d4dc76703	Running	t2.micro	2/2 checks passed	View alarms	ap-sou...
ELB_exp_inst_1	i-08fce02afddbf804b	Terminated	t2.micro	-	View alarms	ap-sou...
ELB_exp_inst_2	i-0ce17aedb50354aa5	Terminated	t2.micro	-	View alarms	ap-sou...
ASG_exp1_sys1	i-0f5db2fa27af3b2ea	Running	t2.micro	2/2 checks passed	View alarms	ap-sou...
ASG_exp1_sys1	i-013e0d6f24e7f869b	Terminated	t2.micro	-	View alarms	ap-sou...
ASG_exp1_sys1	i-00e674c6a36b65ec9	Running	t2.micro	2/2 checks passed	View alarms	ap-sou...
ASG_exp1_sys1	i-02af3c3f69fa44ad4	Terminated	t2.micro	-	View alarms	ap-sou...

Select an instance

After 5 min another 2 will get removed

it will happen till lower limit is reached
 then after if we try and hard terminate
 all instance it will start lower limit of instances
 again.

→ To stop AutoScaling delete auto scaling group goto Auto Scaling group



Because else
 this will
 keep creating
 EC2 instances
 even if terminated
 and free hours
 runout charges
 will apply

Auto Scaling groups (1/1) Info

Name	Launch template/configuration	Instances	Status
ASG_exp1_Autoscalinggroup	ASG_exp1_AMI_template Version Default	4	-

Auto Scaling group: ASG_exp1_Autoscalinggroup

Details Activity Automatic scaling Instance management Monitoring Instance refresh

Actions
delete

Select
auto scaling group

Now to clear EC2 dashboard delete all
load balancers as well as Target groups

To get our AWS as it was when we first
started we remove,

Auto scaling group

Load balancers

Target groups

Key pairs

Snapshots (created due to AMIs)

Clear AMIs

security rules (one won't be deleted that is the default rule)

Finally we can clear notification service → ~~deletetopic~~
and cloudwatch. → ~~deletealarm~~
~~deletesubscription~~

All of the above
can be done through
going in each section
through EC2 dashboard
and then in Actions
there will be an option.

Task IAM (identity and access management)

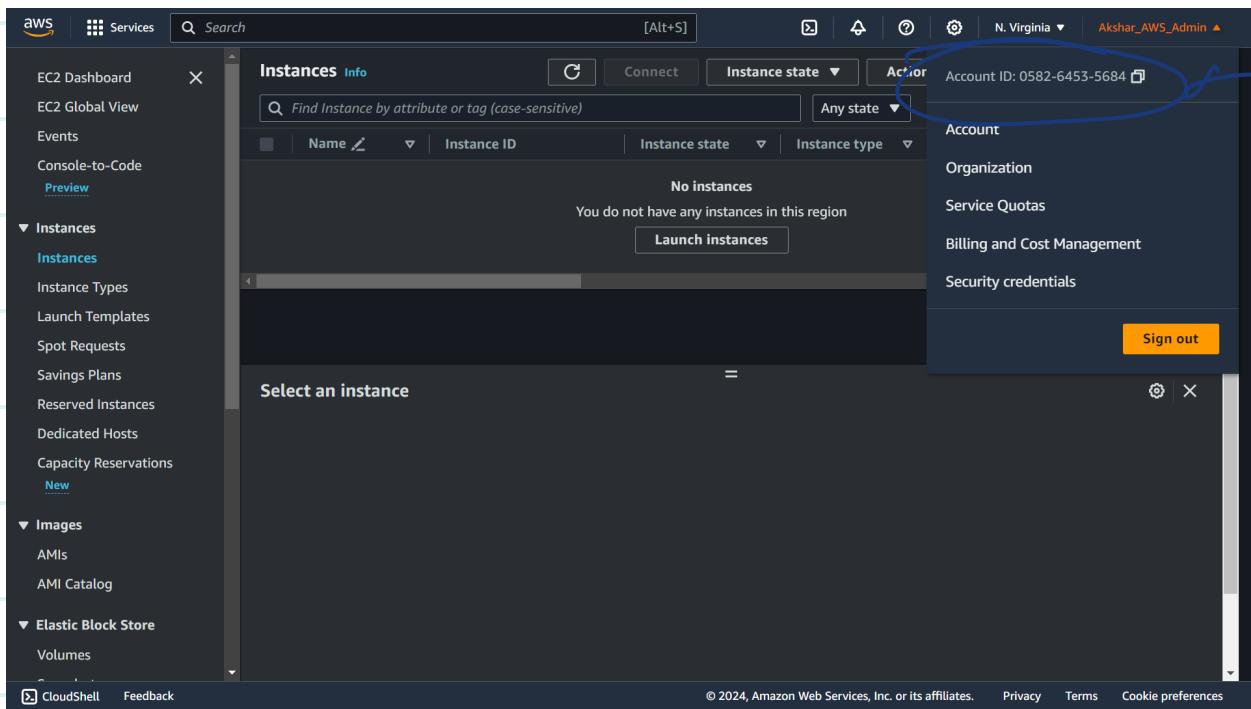
till now we have been accessing main AWS console
through our own email (with which AWS account was
(created)) therefore we are known as root user
but we can have other developers in our team
that will use the same AWS console for development
and other tasks

In root we have control over many services
but we might not want everyone to access every service
like root user can.

So, to limited users allowing access to limited services of AWS console we use,

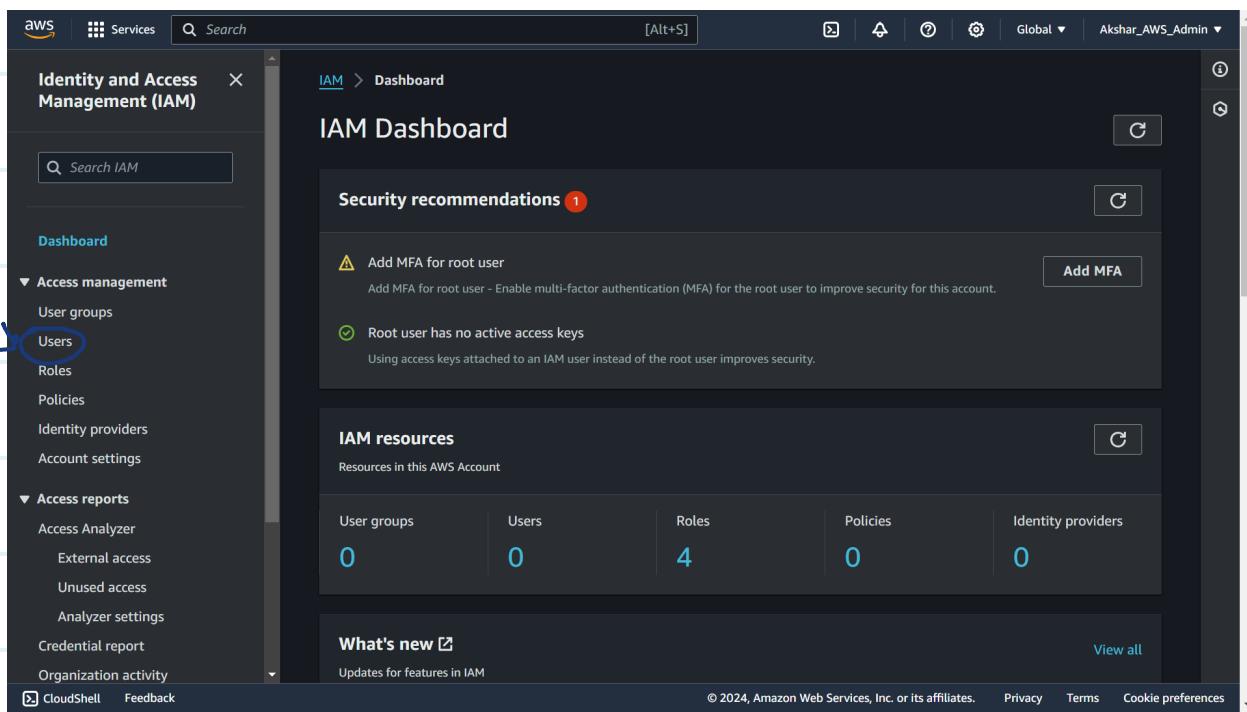
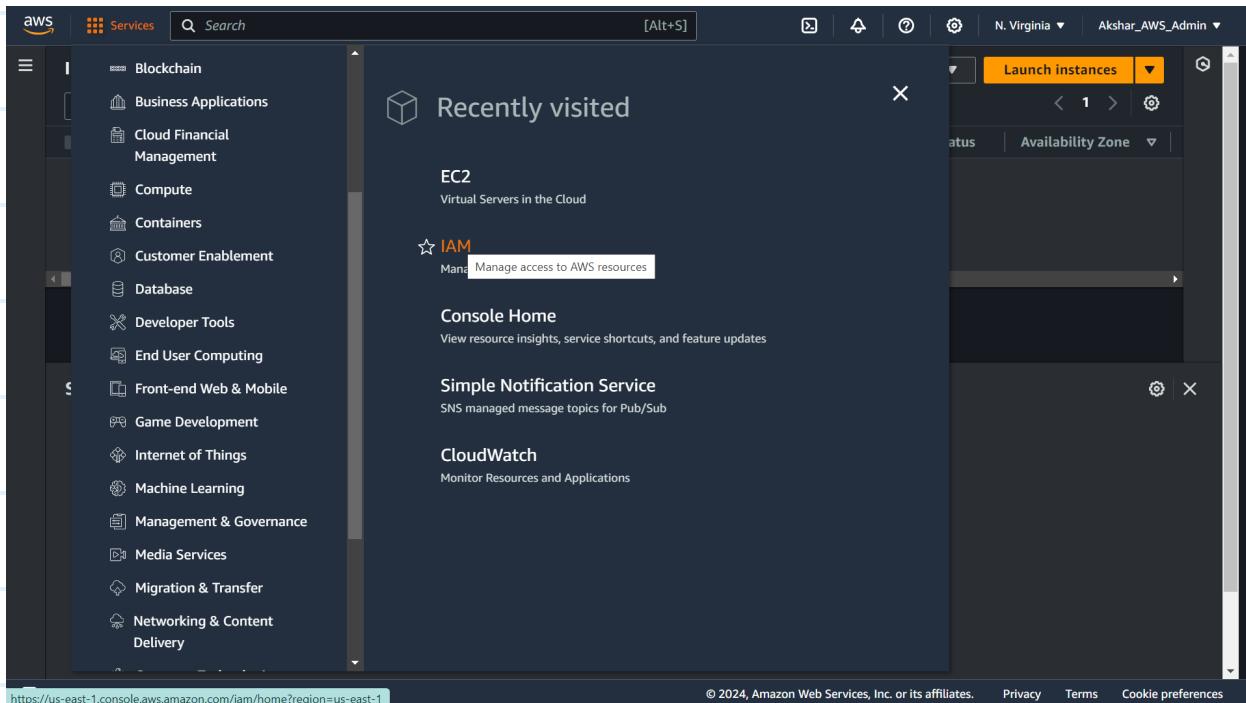
IAM

Each account on AWS has a unique ID associated with it, our root account ID is



for IAM service

goto services and then to IAM



The screenshot shows the AWS IAM service interface. On the left, the navigation pane is open, showing various management options like Access management, Roles, Policies, and Access reports. The main area displays the 'Users' section with a heading 'Users (0) Info'. A prominent yellow 'Create user' button is located at the top right of this section. A blue circle highlights this button, and a handwritten note 'Create User' is written next to it on the right side of the screen.

This screenshot shows the 'Create user' wizard in progress, specifically the 'Specify user details' step. The left sidebar lists three steps: Step 1 (current), Step 2 (Set permissions), and Step 3 (Review and create). The main content area is titled 'Specify user details' and contains a 'User details' section. Inside this section, there is a 'User name' input field containing 'Temp_User1'. A large blue circle highlights this input field. Below the input field, there is a note about character restrictions and a checkbox for 'Provide user access to the AWS Management Console - optional'. A blue callout points from the handwritten note 'Name of user' to the 'User name' field. Another blue callout points from the handwritten note 'rends' to the 'Optional' note below the checkbox.

If you're providing console access to a person, it's a [best practice](#) to manage their access in IAM Identity Center.

i Are you providing console access to a person?

User type

- Specify a user in Identity Center - Recommended
We recommend that you use Identity Center to provide console access to a person. With Identity Center, you can centrally manage user access to their AWS accounts and cloud applications.
- I want to create an IAM user
We recommend that you create IAM users only if you need to enable programmatic access through access keys, service-specific credentials for AWS CodeCommit or Amazon Keyspaces, or a backup credential for emergency account access.

Console password

- Autogenerated password
You can view the password after you create the user.
- Custom password
Enter a custom password for the user.

Show password

Users must create a new password at next sign-in - Recommended
Users automatically get the [IAMUserChangePassword](#) policy to allow them to change their own password.

If you are creating programmatic access through access keys or service-specific credentials for AWS CodeCommit or Amazon Keyspaces, you can generate them after you create this IAM user. [Learn more](#)

this
you can do
Auto pass or create pass

Step 1
[Specify user details](#)

Step 2
Set permissions

Step 3
[Review and create](#)

Step 4
[Retrieve password](#)

Permissions options

- Add user to group
Add user to an existing group, or create a new group. We recommend using groups to manage user permissions by job function.
- Copy permissions
Copy all group memberships, attached managed policies, and inline policies from an existing user.
- Attach policies directly
Attach a managed policy directly to a user. As a best practice, we recommend attaching policies to a group instead. Then, add the user to the appropriate group.

Get started with groups
Create a group and select policies to attach to the group. We recommend using groups to manage user permissions by job function, AWS service access, or custom permissions. [Learn more](#)

Create group

Set permissions boundary - optional

Cancel Previous Next

group is set of policy (permissions)
predefined and can be directly associated with a user

individually attaching policy to a single User.

aws Services Search [Alt+S] Global Akshar_AWS_Admin

Permissions policies (1180)

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

Policy name	Type	Attached entities
AccessAnalyzerService...	AWS managed	0
AdministratorAccess	AWS managed - job function	0
AdministratorAccess-A...	AWS managed	0
AdministratorAccess-A...	AWS managed	0
AlexaForBusinessDevic...	AWS managed	0
AlexaForBusinessFullA...	AWS managed	0
AlexaForBusinessGate...	AWS managed	0
AlexaForBusinessLifes...	AWS managed	0
AlexaForBusinessNetw...	AWS managed	0
AlexaForBusinessPoly...	AWS managed	0

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There
are
all these
policies
Select those
which you
want user
to access

aws Services Search [Alt+S] Global Akshar_AWS_Admin

Policy name	Type	Attached entities
AlexaForBusinessLifes...	AWS managed	0
AlexaForBusinessNetw...	AWS managed	0
AlexaForBusinessPoly...	AWS managed	0
AlexaForBusinessRead...	AWS managed	0
AmazonAPIGatewayA...	AWS managed	0
AmazonAPIGatewayIn...	AWS managed	0
AmazonAPIGatewayP...	AWS managed	0
AmazonAppFlowFullA...	AWS managed	0
AmazonAppFlowRead...	AWS managed	0
AmazonAppStreamFul...	AWS managed	0
AmazonAppStreamPC...	AWS managed	0
AmazonAppStreamRe...	AWS managed	0
AmazonAppStreamSe...	AWS managed	0

▶ Set permissions boundary - optional

Cancel Previous Next

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If none
selected
by default
on access
that user
gets
storage.

Next

Sales Services Search [Alt+S] Global Akshar_AWS_Admin

Step 3 Review and create Step 4 Retrieve password

User details

User name Temp_User1	Console password type Custom password	Require password reset No
-------------------------	--	------------------------------

Permissions summary

Name	Type	Used as
No resources		

Tags - optional

Tags are key-value pairs you can add to AWS resources to help identify, organize, or search for resources. Choose any tags you want to associate with this user.

No tags associated with the resource.

Add new tag You can add up to 50 more tags.

Create user

create user

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User created successfully You can view and download the user's password and email instructions for signing in to the AWS Management Console.

IAM > Users > Create user

Step 1 Specify user details Step 2 Set permissions Step 3 Review and create Step 4 Retrieve password

Retrieve password

You can view and download the user's password below or email users instructions for signing in to the AWS Management Console. This is the only time you can view and download this password.

Console sign-in details

Console sign-in URL https://058264535684.signin.aws.amazon.com/console	Email sign-in instructions
User name Temp_User1	
Console password ***** Show	

Download .csv file Return to users list

these are user's signin credentials can be downloaded in form of csv

user will log in through

Sign in

Root user
Account owner that performs tasks requiring unrestricted access. [Learn more](#)

IAM user
User within an account that performs daily tasks. [Learn more](#)

Root user email address

Next

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Explore AWS AI Services
Easily add intelligence to your applications. No machine learning skills required
[Find out how >](#)

the user will sign in from here.

Create policy Groups (set of permissions)

Identity and Access Management (IAM)

User groups

User groups (0) [Info](#)
A user group is a collection of IAM users. Use groups to specify permissions for a collection of users.

Create group

Create group

User group name
Enter a meaningful name to identify this group.
Policy_Group_1
Maximum 128 characters. Use alphanumeric and '+,-,@,_' characters.

Add users to the group - *Optional* (2) Info

An IAM user is an entity that you create in AWS to represent the person or application that uses it to interact with AWS.

User name	Groups	Last activity	Creation time
Temp_User1	0	None	8 minutes ago
Tempuser1	0	None	4 minutes ago

Attach permissions policies - *Optional* (912) Info

You can attach up to 10 policies to this user group. All the users in this group will have permissions that are defined in the selected policies.

Policy name	Type	Used as	Description
AdministratorAccess	AWS managed	None	Provides full access to AWS services
AdministratorAccess	AWS managed	None	Grants account administrative p...
AdministratorAccess	AWS managed	None	Grants account administrative p...
AlexaForBusinessDevice...	AWS managed	None	Provide device setup access to AlexaForBusiness...
AlexaForBusinessFull...	AWS managed	None	Grants full access to AlexaForBusiness...

Add users to group

Search

User name	Groups	Last activity	Creation time
Temp_User1	0	None	8 minutes ago
Tempuser1	0	None	4 minutes ago

Attach permissions policies - *Optional* (912) Info

You can attach up to 10 policies to this user group. All the users in this group will have permissions that are defined in the selected policies.

Policy name	Type	Used as	Description
AdministratorAccess	AWS managed	None	Provides full access to AWS services
AdministratorAccess	AWS managed	None	Grants account administrative p...
AdministratorAccess	AWS managed	None	Grants account administrative p...
AlexaForBusinessDevice...	AWS managed	None	Provide device setup access to AlexaForBusiness...
AlexaForBusinessFull...	AWS managed	None	Grants full access to AlexaForBusiness...

Attach set of permissions to this group

This helps when we want to create assign or

take away permissions from bunch of users together
then we add them to a usergroup and manipulate group
policies only.

An IAM role is access given to an entity inside org or outside org for a short while to specific services.

The screenshot shows the AWS Identity and Access Management (IAM) service interface. The left sidebar is titled 'Identity and Access Management (IAM)' and includes sections for Dashboard, Access management (User groups, Users, Roles, Policies, Identity providers, Account settings), Access reports (Access Analyzer, External access, Unused access, Analyzer settings, Credential report, Organization activity), CloudShell, and Feedback. The main content area is titled 'Roles' and shows a list of four roles:

Role name	Trusted entities
AWSServiceRoleForAutoScaling	AWS Service: autoscaling (Service)
AWSServiceRoleForElasticLoadBalancing	AWS Service: elasticloadbalancing (Service)
AWSServiceRoleForSupport	AWS Service: support (Service-Lambda)
AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service)

Below the roles, there is a section titled 'Roles Anywhere' with three options: 'Access AWS from your non-AWS workloads' (using X.509 Standard), 'X.509 Standard' (using your own existing PKI), and 'Temporary credentials' (use temporary credentials with ease). The bottom of the page includes a footer with links to CloudShell, Feedback, and various AWS services like Lambda, S3, and CloudWatch.

delete unnecessary users after trying func

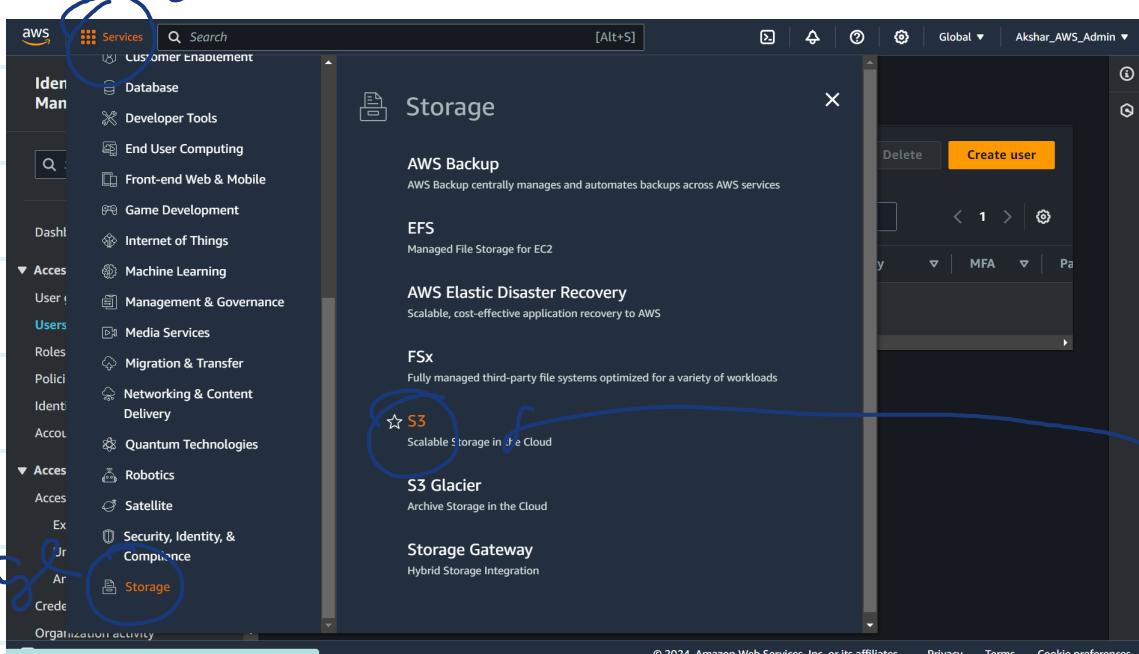
Another AWS Service

S3 (Storage service)

Increasing storage capacity of hardware is not possible in continuous manner Like 5GB to 6 GB it's available in distinct sizes like 4 8 16 64 128 GB cloud allows for scaling of storage as well and only we will use what we need and pay for only what we use.

To access S3,

Services



Click
S3

To create a storage separation known as bucket

The screenshot shows the AWS S3 console with the heading "Amazon S3" and the sub-headline "Store and retrieve any amount of data from anywhere". Below this, a descriptive text states: "Amazon S3 is an object storage service that offers industry-leading scalability, data availability, security, and performance." A large callout bubble highlights the "Create a bucket" button in the "Create a bucket" section, which contains the text: "Every object in S3 is stored in a bucket. To upload files and folders to S3, you'll need to create a bucket where the objects will be stored." The "Create bucket" button is circled.

The screenshot shows the "Create bucket" configuration page. At the top, there's a "General configuration" section with an "AWS Region" dropdown set to "US East (N. Virginia) us-east-1". A blue oval encircles this dropdown. To the right, there are two options: "General purpose" (selected) and "Directory - New". Below this, a "Bucket name" field is filled with "MySamplebucket". A blue arrow points from the "Global region" label to the "Global" dropdown in the top right, which is also circled. Another blue arrow points from the "specific region" label to the "us-east-1" dropdown in the "General configuration" section. At the bottom, there's an "Object Ownership" section with the note: "Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects." The footer includes standard AWS links like CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

What is diff between Global region and subregion
will be told later.

Default encryption Info

Server-side encryption is automatically applied to new objects stored in this bucket.

Encryption type Info

- Server-side encryption with Amazon S3 managed keys (SSE-S3)
- Server-side encryption with AWS Key Management Service keys (SSE-KMS)
- Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)

Secure your objects with two separate layers of encryption. For details on pricing, see [AWS KMS pricing](#) on the Storage tab of the [Amazon S3 pricing page](#).

Bucket key

Using an S3 Bucket Key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSSE-KMS. [Learn more](#)

Disable

Enable

Advanced settings

After creating the bucket, you can upload files and folders to the bucket, and configure additional bucket settings.

Create bucket

disabled
bucketkey

Create bucket

Amazon S3 > Buckets

Account snapshot

Storage lens provides visibility into storage usage and activity trends. [Learn more](#)

General purpose buckets (1) [Info](#)

Buckets are containers for data stored in S3.

Name	AWS Region	Access	Creation date
mysamplebucketawsrkshp	US East (N. Virginia) us-east-1	Bucket and objects not public	March 15, 2024, 17:12:12 (UTC+05:30)

Create bucket

click to go in the bucket access

The screenshot shows the AWS S3 console interface for the 'mysamplebucketawsrkshp' bucket. At the top, there are tabs for 'Objects', 'Properties', 'Permissions', 'Metrics', 'Management', and 'Access Points'. Below this, the 'Actions' menu is open, with 'Create folder' highlighted. A large blue circle highlights the 'Upload' button. Another blue circle highlights the 'Create folder' button. Handwritten text 'Upload files' is written next to the 'Upload' button, and handwritten text 'create folder' is written next to the 'Create folder' button. The main area displays a message: 'No objects' and 'You don't have any objects in this bucket.' with a 'Upload' button below it.

Upload files
create folder
above were basics of S3.

S3 Service

S3 storage classes / Tiers

AWS provides storage in tiers meaning a certain tier storage may support different number of accesses simultaneously,

Suppose you want huge simultaneous access capability then you choose S3 tier and ~~Glacier~~

AWS also provides facility to change tier automatically or in a timed manner
(meaning for a specific time period)

S3 charges

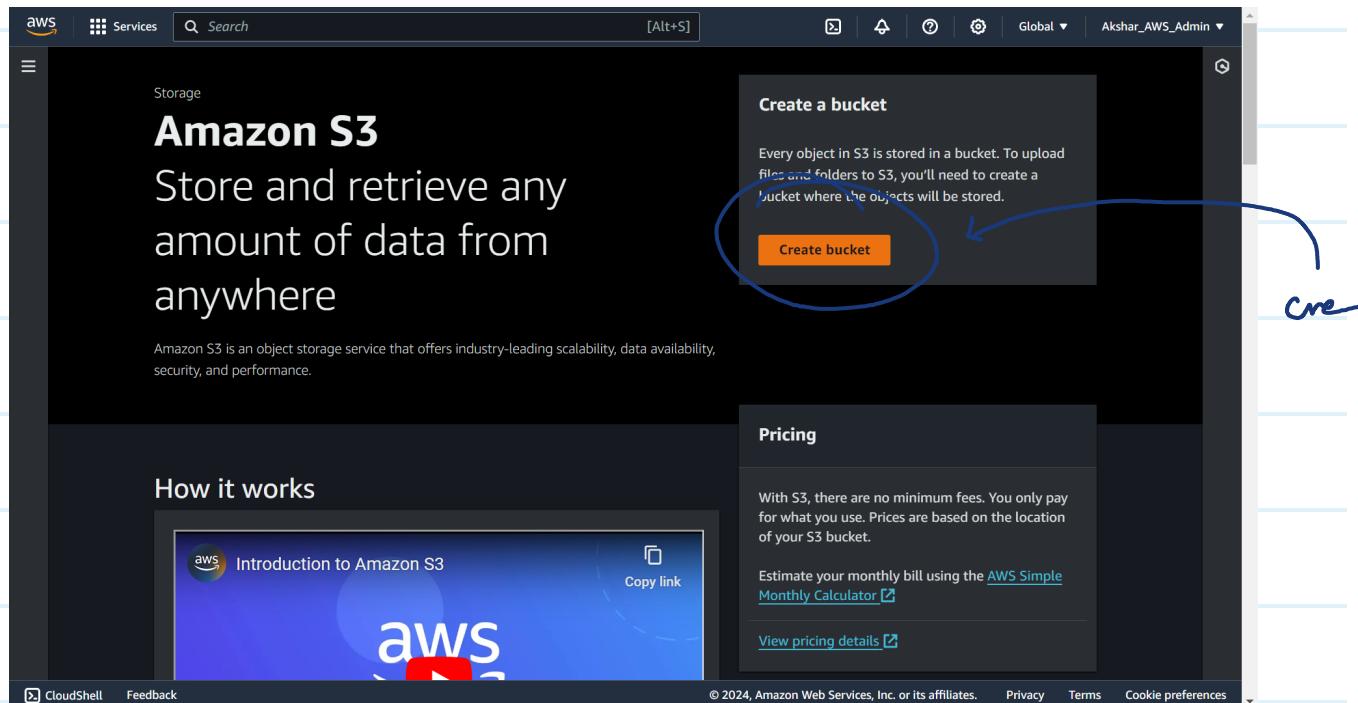
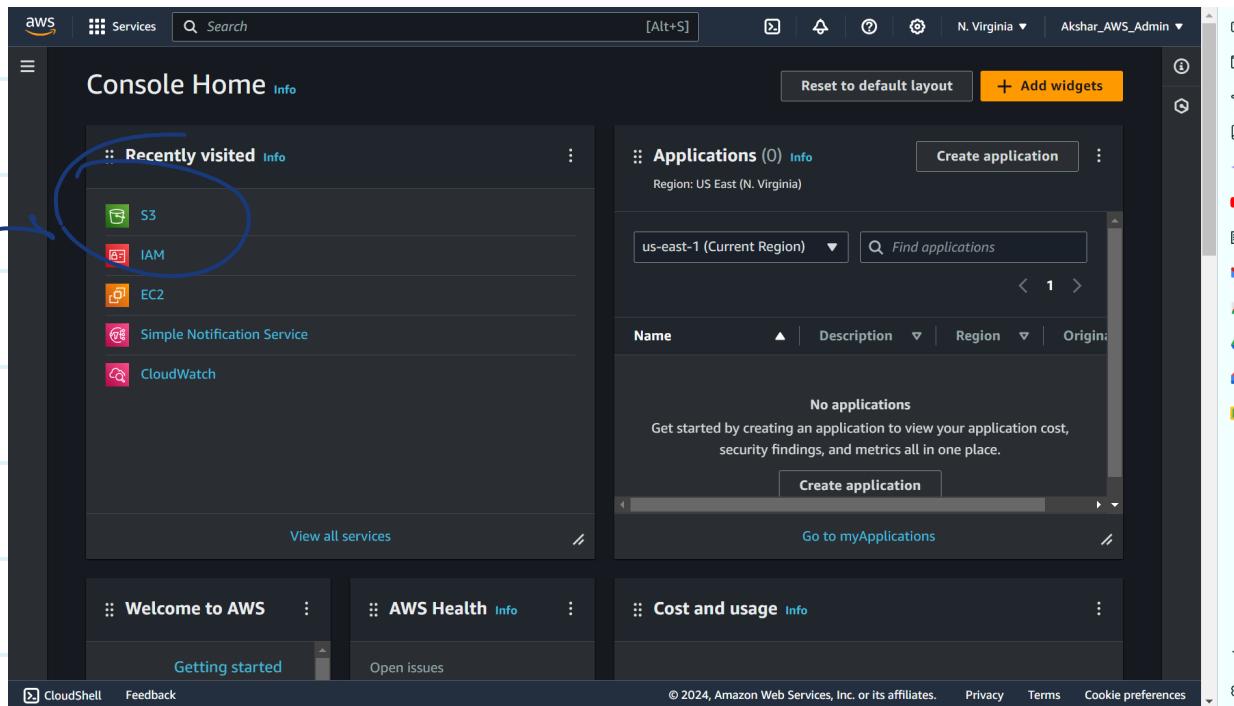
charges are applied to

- storage capacity
- limits of requests made on that storage
- Storage management Pricing
(pricing according to tiers)
- Data Transfer pricing from one region to another

- Transfer acceleration
(Transfer speed acceleration)
- Cross Region Replication
(Automatically happens by default and you are charged for it regardless)

Task deploying static webpage through S3 bucket

Create an S3 bucket.



Create bucket Info

Buckets are containers for data stored in S3.

General configuration

AWS Region: Asia Pacific (Mumbai) ap-south-1

Bucket name: **Info** Info

AWSwrkshop_S3_exp

Bucket name must be unique within the global namespace and follow the bucket naming rules. [See rules for bucket naming](#)

Copy settings from existing bucket - optional
Only the bucket settings in the following configuration are copied:

Choose bucket Format: s3://bucket/prefix

Object Ownership Info

Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

ACLs disabled (recommended)

ACLs enabled

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CloudShell **Feedback**

choose region and name

if existing bucket is there and you want same config then choose this

Object Ownership Info

Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

ACLs disabled (recommended)
All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.

ACLs enabled
Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.

⚠ We recommend disabling ACLs, unless you need to control access for each object individually or to have the object writer own the data they upload. Using a bucket policy instead of ACLs to share data with users outside of your account simplifies permissions management and auditing.

Object Ownership

Bucket owner preferred
If new objects written to this bucket specify the bucket-owner-full-control canned ACL, they are owned by the bucket owner. Otherwise, they are owned by the object writer.

Object writer
The object writer remains the object owner.

Block Public Access settings for this bucket

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to this bucket and its objects is blocked, turn on Block all public access. These settings apply only to this bucket.

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Select this

Block Public Access settings for this bucket

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to this bucket and its objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to this bucket or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

Block all public access: Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

- Block public access to buckets and objects granted through new access control lists (ACLs)**: S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.
- Block public access to buckets and objects granted through any access control lists (ACLs)**: S3 will ignore all ACLs that grant public access to buckets and objects.
- Block public access to buckets and objects granted through new public bucket or access point policies**: S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.
- Block public and cross-account access to buckets and objects through any public bucket or access point policies**: S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.

Turning off block all public access might result in this bucket and the objects within becoming public

AWS recommends that you turn on block all public access, unless public access is required for specific and

Bucket Versioning

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. [Learn more](#)

Bucket Versioning

Disable
 Enable

Tags - optional (0)

You can use bucket tags to track storage costs and organize buckets. [Learn more](#)

No tags associated with this bucket.
[Add tag](#)

Default encryption Info

Server-side encryption is automatically applied to new objects stored in this bucket.

Default encryption [Info](#)
Server-side encryption is automatically applied to new objects stored in this bucket.

Encryption type [Info](#)
 Server-side encryption with Amazon S3 managed keys (SSE-S3)
 Server-side encryption with AWS Key Management Service keys (SSE-KMS)
 Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)
 Secure your objects with two separate layers of encryption. For details on pricing, see [DSSE-KMS pricing](#) on the Storage tab of the [Amazon S3 pricing page](#).

Bucket Key
Using an S3 Bucket Key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSSE-KMS. [Learn more](#)

Disable
 Enable

Advanced settings

After creating the bucket, you can upload files and folders to the bucket, and configure additional bucket settings.

[Cancel](#) **Create bucket**

createbucket

Now you want files for your static website
if you don't have make a sample html

Successfully created bucket "awswrkshps3exp"
To upload files and folders, or to configure additional bucket settings, choose [View details](#).

Amazon S3 > Buckets

Account snapshot
Storage lens provides visibility into storage usage and activity trends. [Learn more](#)

[View Storage Lens dashboard](#)

[General purpose buckets](#) [Directory buckets](#)

General purpose buckets (1) Info												
Buckets are containers for data stored in S3.												
Create bucket												
<div style="display: flex; align-items: center;"> Find buckets by name <div style="flex-grow: 1;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Name</th> <th>AWS Region</th> <th>Access</th> <th>Creation date</th> </tr> </thead> <tbody> <tr> <td>awswrkshps3exp</td> <td>Asia Pacific (Mumbai) ap-south-1</td> <td>Objects can be public</td> <td>March 16, 2024, 10:18:10 (UTC+05:30)</td> </tr> </tbody> </table> </div> </div>					Name	AWS Region	Access	Creation date	awswrkshps3exp	Asia Pacific (Mumbai) ap-south-1	Objects can be public	March 16, 2024, 10:18:10 (UTC+05:30)
Name	AWS Region	Access	Creation date									
awswrkshps3exp	Asia Pacific (Mumbai) ap-south-1	Objects can be public	March 16, 2024, 10:18:10 (UTC+05:30)									

click on this to
access this bucket

Amazon S3 > Buckets > awswrkshps3exp

awswrkshps3exp Info

Objects Properties Permissions Metrics Management Access Points

Objects (0) Info

C Copy S3 URI Copy URL Download Open Delete Actions Create folder Upload

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Find objects by prefix

No objects
You don't have any objects in this bucket.

Upload

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upload file

Amazon S3 > Buckets > awswrkshps3exp > Upload

Upload Info

Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API. [Learn more](#)

Drag and drop files and folders you want to upload here, or choose Add files or Add folder.

Files and folders (1 Total, 77.0 B)
All files and folders in this table will be uploaded.

Find by name

Name	Folder	Type
index.html	-	text/html

Destination Info

Destination
s3://awswrkshps3exp

Remove Add files Add folder

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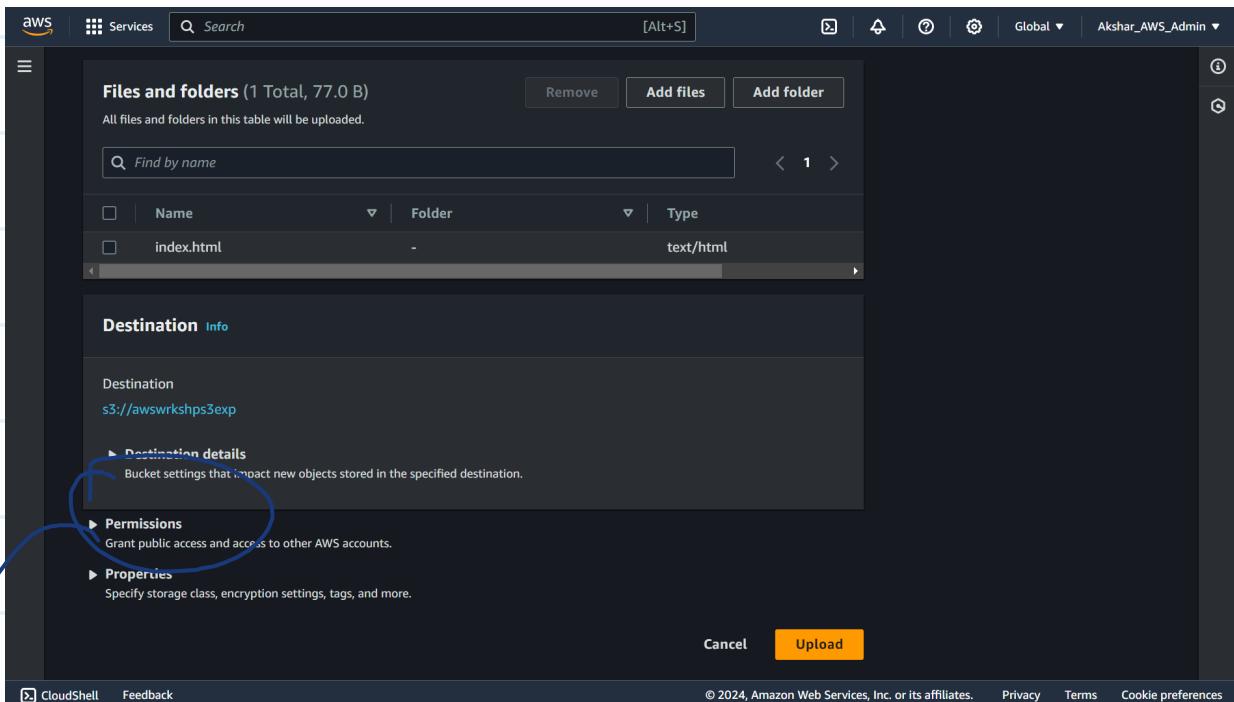
Sample file

bucket url

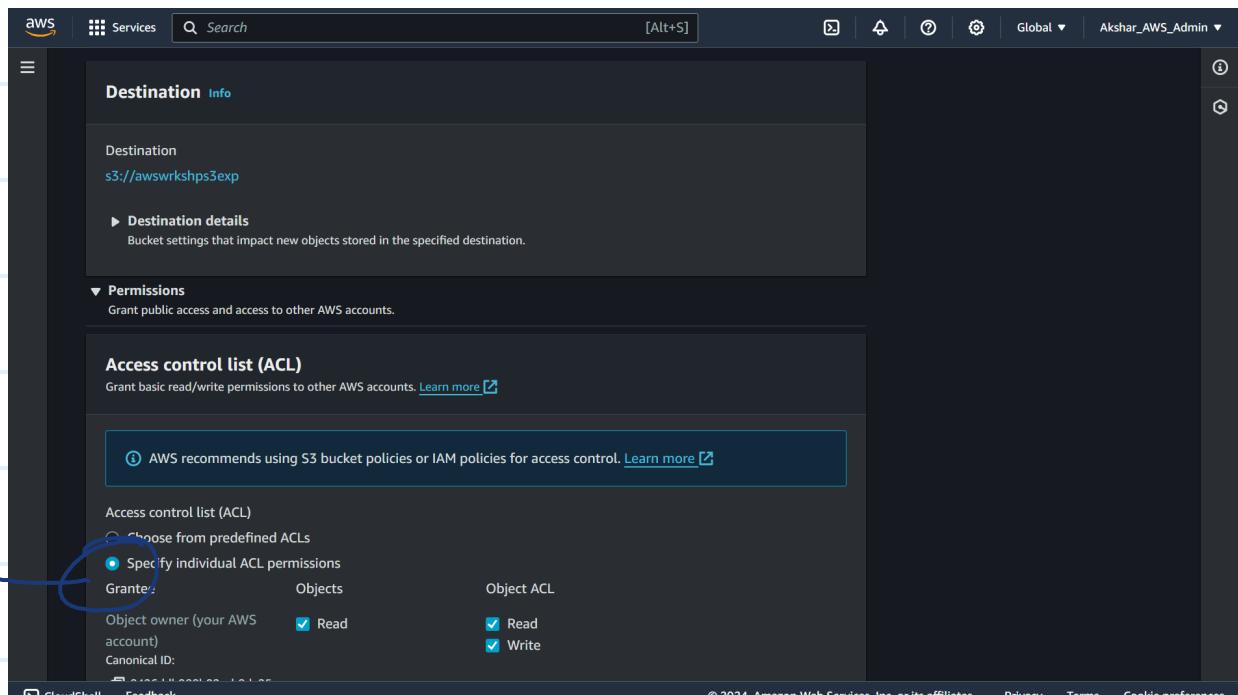
every file and dir in bucket
also has such url endpoint

Add sample file

but currently only private access
allowed to make it public,



Permissions



AWS recommends using S3 bucket policies or IAM policies for access control. [Learn more](#)

Access control list (ACL)

- Choose from predefined ACLs
- Specify individual ACL permissions

Grantee	Objects	Object ACL
Object owner (your AWS account)	<input checked="" type="checkbox"/> Read	<input checked="" type="checkbox"/> Read <input checked="" type="checkbox"/> Write
Canonical ID:	<input checked="" type="checkbox"/> 8426d4b988b02ecb8da25 edp5/e81a35b1d58df5ef0bd f/dfd4158438fb9	<input checked="" type="checkbox"/> Read <input checked="" type="checkbox"/> Write
Everyone (public access) group:	<input checked="" type="checkbox"/> ⚠️ Read	<input checked="" type="checkbox"/> ⚠️ Read <input type="checkbox"/> Write
Authenticated users group (anyone with an AWS account)	<input type="checkbox"/> Read	<input type="checkbox"/> Read <input type="checkbox"/> Write
Group:	<input type="checkbox"/> http://acs.amazonaws.com/groups/global/AuthenticatedUsers	

⚠️ When you grant access to the Everyone or Authenticated users group grantees, anyone in the world can access the specified objects.

access URL

Enable
read
for
everyone

http://acs.amazonaws.com/groups/global/AllUsers

Authenticated users group (anyone with an AWS account)
Group:
http://acs.amazonaws.com/groups/global/AuthenticatedUsers

⚠️ When you grant access to the Everyone or Authenticated users group grantees, anyone in the world can access the specified objects.
[Learn more](#)

I understand the effects of these changes on the specified objects.

Access for other AWS accounts
No other AWS accounts associated with the resource.

Add grantee

Properties
Specify storage class, encryption settings, tags, and more.

Cancel Upload

to change class/tier of uploaded object.

AWS Services Search [Alt+S] Global Akshar_AWS_Admin

Amazon S3 > Buckets > awswrkshps3exp

awswrkshps3exp Info

Objects (1) Info

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Name	Type	Last modified	Size	Storage class
<input checked="" type="checkbox"/> index.html	html	March 16, 2024, 10:25:48 (UTC+05:30)	77.0 B	Standard

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Select an object

AWS Services Search [Alt+S] Global Akshar_AWS_Admin

Amazon S3 > Buckets > awswrkshps3exp

awswrkshps3exp Info

Objects (1) Info

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

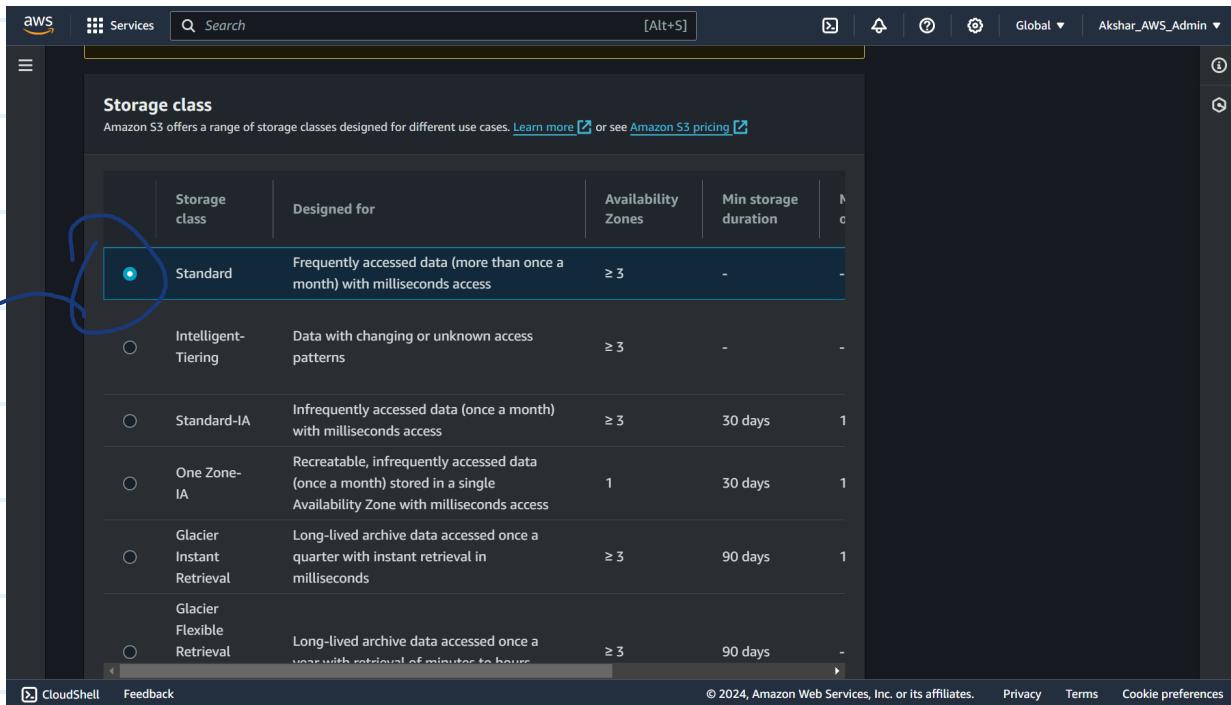
Name	Type	Last modified	Size	Storage class
<input checked="" type="checkbox"/> index.html	html	March 16, 2024, 10:25:48 (UTC+05:30)	77.0 B	Standard

Actions ▾

- Calculate total size
- Copy
- Move
- Initiate restore
- Query with S3 Select
- Edit actions
- Rename object
-
- Edit server-side encryption
- Edit metadata
- Edit tags
- Make public using ACL

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Action
Edit Storage Class



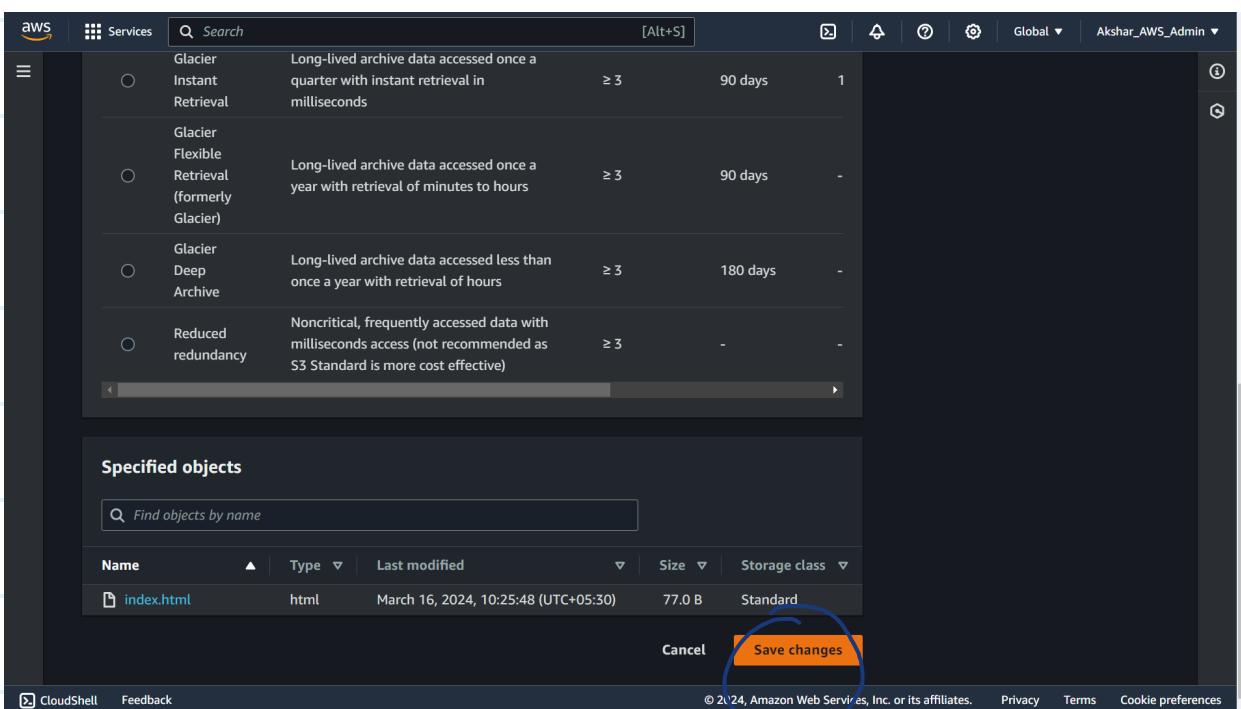
Storage class

Amazon S3 offers a range of storage classes designed for different use cases. [Learn more](#) or see [Amazon S3 pricing](#).

Storage class	Designed for	Availability Zones	Min storage duration
Standard	Frequently accessed data (more than once a month) with milliseconds access	≥ 3	-
Intelligent-Tiering	Data with changing or unknown access patterns	≥ 3	-
Standard-IA	Infrequently accessed data (once a month) with milliseconds access	≥ 3	30 days
One Zone-IA	Recreatable, infrequently accessed data (once a month) stored in a single Availability Zone with milliseconds access	1	30 days
Glacier Instant Retrieval	Long-lived archive data accessed once a quarter with instant retrieval in milliseconds	≥ 3	90 days
Glacier Flexible Retrieval	Long-lived archive data accessed once a year with retrieval of minutes to hours	≥ 3	90 days

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keep it Standard for now



Specified objects

Find objects by name

Name	Type	Last modified	Size	Storage class
index.html	html	March 16, 2024, 10:25:48 (UTC+05:30)	77.0 B	Standard

Cancel Save changes

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save changes

Objects (1) Info

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Name	Type	Last modified	Size	Storage class
index.html	html	March 16, 2024, 10:25:48 (UTC+05:30)	77.0 B	Standard

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click here
to go to object specifications

index.html - Object in S3 bucket

s3.console.aws.amazon.com/s3/object/awswrkshps3exp?region=ap-south-1&bucketType=general&prefix=index.h...

Properties Permissions Versions

Object overview

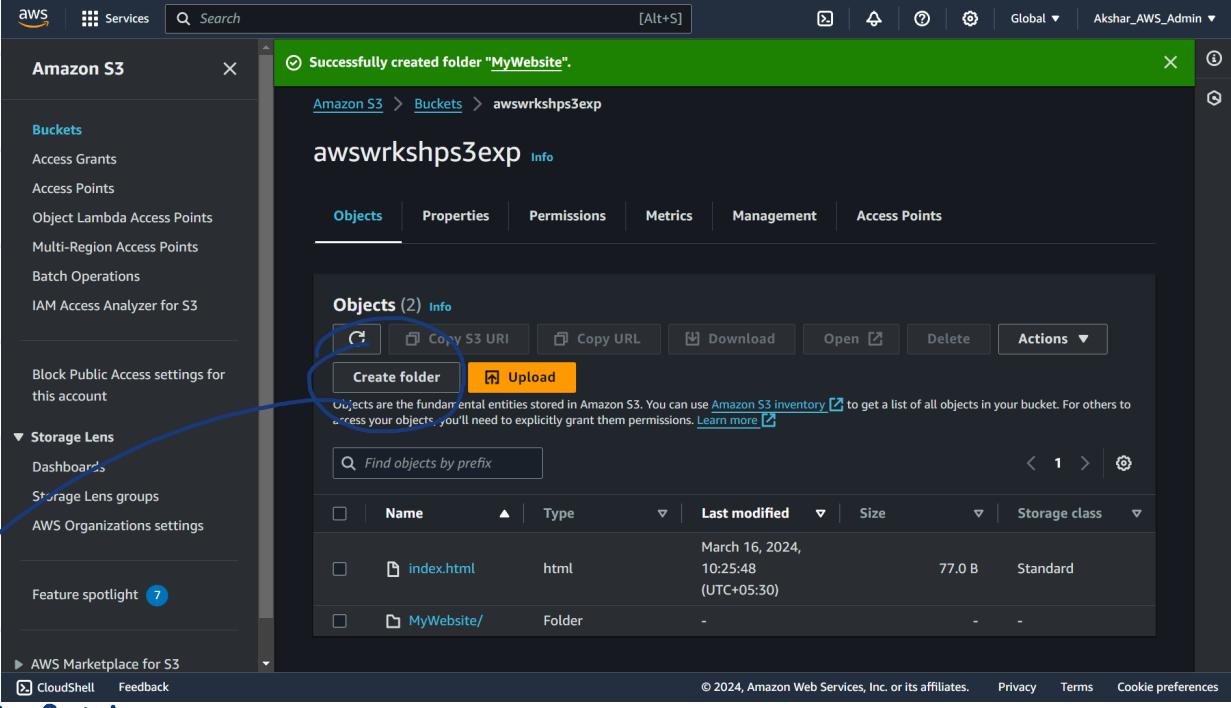
Owner	8426ddb988b02ecb8da25eda07e81a35b1d58dafd5ef0bd67dfd4158438feb9	S3 URI	s3://awswrkshps3exp/index.html
AWS Region	Asia Pacific (Mumbai) ap-south-1	Amazon Resource Name (ARN)	arn:aws:s3:::awswrkshps3exp/index.html
Last modified	March 16, 2024, 10:25:48 (UTC+05:30)	Entity tag (ETag)	4f7a2df6cf4c57d38114e685c563776
Size	77.0 B	Object URL	https://awswrkshps3exp.s3.ap-south-1.amazonaws.com/index.html

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Here you will
see access
URL try accessing
it publicly

(if you have a domain name purchased you can link it with this Go to DNS zone and config your machine IP with DNS Name)

following above step we have files on the bucket but its not yet hosted to check that create a folder move sample file into that folder



The screenshot shows the AWS S3 console interface. On the left, the navigation pane is visible with options like Buckets, Access Grants, Access Points, Object Lambda Access Points, Multi-Region Access Points, Batch Operations, IAM Access Analyzer for S3, Block Public Access settings for this account, Storage Lens (with Dashboards and Storage Lens groups), AWS Organizations settings, Feature spotlight (7), and AWS Marketplace for S3. A blue curved arrow points from the text 'Create folder' at the bottom left towards the 'Create folder' button in the S3 console.

In the main content area, a green success message at the top says "Successfully created folder 'MyWebsite'." Below this, the bucket path is shown as "Amazon S3 > Buckets > awswrkhps3exp". The "Objects" tab is selected, showing two items: "index.html" (html type, last modified March 16, 2024, 10:25:48 (UTC+0:30), size 77.0 B, storage class Standard) and "MyWebsite/" (Folder type). At the top of the object list, there are buttons for "Create folder" (highlighted with a blue circle) and "Upload". Other buttons include "Copy S3 URI", "Copy URL", "Download", "Open", "Delete", and "Actions". A "Find objects by prefix" search bar is also present.

Create folder

Folder

Folder name
Enter folder name /

Server-side encryption Info
Server-side encryption protects data at rest.

The following encryption settings apply only to the folder object and not to sub-folder objects.

Do not specify an encryption key
The bucket settings for default encryption are used to encrypt the folder object when storing it in Amazon S3.

Specify an encryption key
The specified encryption key is used to encrypt the folder object before storing it in Amazon S3.

If your bucket policy requires objects to be encrypted with a specific encryption key, you must specify the same encryption key when you create a folder. Otherwise, folder creation will fail.

Create folder

Objects (2) Info

Actions	Name	Type	Last modified	Size
<input checked="" type="checkbox"/>	index.html	html	March 16, 2024, 10:25:48 (UTC+05:30)	-
<input type="checkbox"/>	MyWebsite/	Folder	-	-

Download as
Share with a presigned URL
Calculate total size
Copy
Move
Initiate restore
Query with S3 Select
Edit actions
Rename object
Edit storage class
Edit server-side encryption
Edit metadata

1 select file

In the bucket you are copying objects from uses the bucket owner enforced setting for S3 Object Ownership, object ACLs will not be copied to the specified destination.

- If you want to copy objects to a bucket that uses the bucket owner enforced setting for S3 Object Ownership, you'll need to ensure that the source bucket also uses the bucket owner enforced setting or object ACL grants to other AWS accounts and groups have been removed.

[Learn more](#)

Destination

Destination type

General purpose bucket

Access Point

Destination

s3://my-s3-bucket/prefix/

Format: s3://<bucket-name></optional-prefix-with-path/>

View | [Browse S3](#)

Destination bucket name

-

Destination prefix

-

Destination details

The following bucket settings impact new objects stored in the specified destination.

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Browse
bucket

In the bucket you are copying objects from uses the bucket owner enforced setting for S3 Object Ownership, object ACLs will not be copied to the specified destination.

- If you want to copy objects to a bucket that uses the bucket owner enforced setting for S3 Object Ownership, you'll need to ensure that the source bucket also uses the bucket owner enforced setting or object ACL grants to other AWS accounts and groups have been removed.

Destination

S3 Buckets > awswrkshps3exp

Objects (2)

Name	Type	Last modified	Size	Storage class
MyWebsite/	Folder	-	-	-
index.html	html	March 16, 2024, 10:25:48 (UTC+05:30)	77.0 B	Standard

Choose destination

Cancel

Destination details

The following bucket settings impact new objects stored in the specified destination.

https://s3.console.aws.amazon.com/s3/#

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choose dest

We recommend that you enable Bucket Versioning to help protect against unintentionally overwriting or deleting objects. [Learn more](#)

Enable Bucket Versioning

Specified objects

Find objects by name

Name	Type	Last modified	Size
index.html	html	March 16, 2024, 10:25:48 (UTC+05:30)	77.0 B

Checksums [Info](#)

Checksum functions are used for additional data integrity verification of new objects. [Learn more](#)

Additional checksums

- Copy existing checksum functions
Apply the same checksum function to the destination object. The checksum value may change compared to when it was added. [Learn more](#)
- Replace with a new checksum function
Specify a new checksum function for additional data integrity validation which will overwrite any existing data integrity settings.

Cancel **Move**

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Scro 11
down

Move

Amazon S3 > Buckets > awswrkshps3exp

awswrkshps3exp [Info](#)

Objects Properties Permissions Metrics Management Access Points

Objects (1) Info

Find objects by prefix

Name	Type	Last modified	Size	Storage class
MyWebsite/	Folder	-	-	-

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

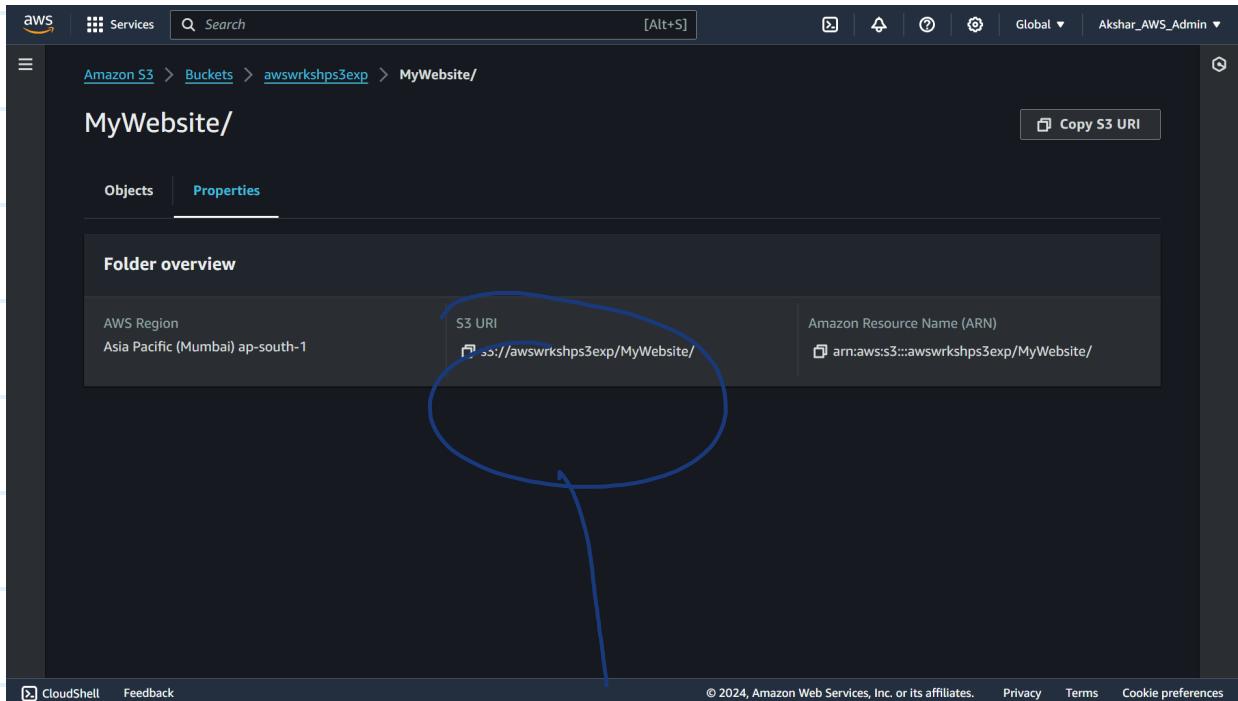
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Now accessing this
folder won't open the website
directly
first change access rights as we did with file

and then

click on MyWebsite/

to get ↴



URL of folder

But if you try and access through
this
it won't
open as website

Go back to buckets



Amazon S3 > **Buckets** > awswrkshps3exp

Objects (1) Info

Actions: Copy S3 URI, Copy URL, Download, Open, Delete, Actions, Create folder, Upload

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Name	Type	Last modified	Size	Storage class
MyWebsite/	Folder	-	-	-

Select your bucket you want your website hosted from.

Amazon S3 > Buckets

Account snapshot

Storage lens provides visibility into storage usage and activity trends. [Learn more](#)

General purpose buckets (1) Info

Buckets are containers for data stored in S3.

General purpose buckets (1) Info

Create bucket

Name	AWS Region	Access	Creation date
awsrukshps3exp	Asia Pacific (Mumbai) ap-south-1	Objects can be public	March 16, 2024, 10:18:10 (UTC+05:30)

Properties

AWS Services Search [Alt+S] Global Akshar_AWS_Admin

Amazon S3 > Buckets > awswrkshps3exp

awswrkshps3exp Info

Objects Properties Metrics Management Access Points

Objects (1) Info

C Copy S3 URI Copy URL Download Open Delete Actions Create folder Upload

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Find objects by prefix

Name	Type	Last modified	Size	Storage class
MyWebsite/	Folder	-	-	-

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Scrolldown

AWS Services Search [Alt+S] Global Akshar_AWS_Admin

Object Lock Edit

Store objects using a write-once-read-many (WORM) model to help you prevent objects from being deleted or overwritten for a fixed amount of time or indefinitely. Object Lock works only in versioned buckets. [Learn more](#)

Object Lock Disabled

Requester pays Edit

When enabled, the requester pays for requests and data transfer costs, and anonymous access to this bucket is disabled. [Learn more](#)

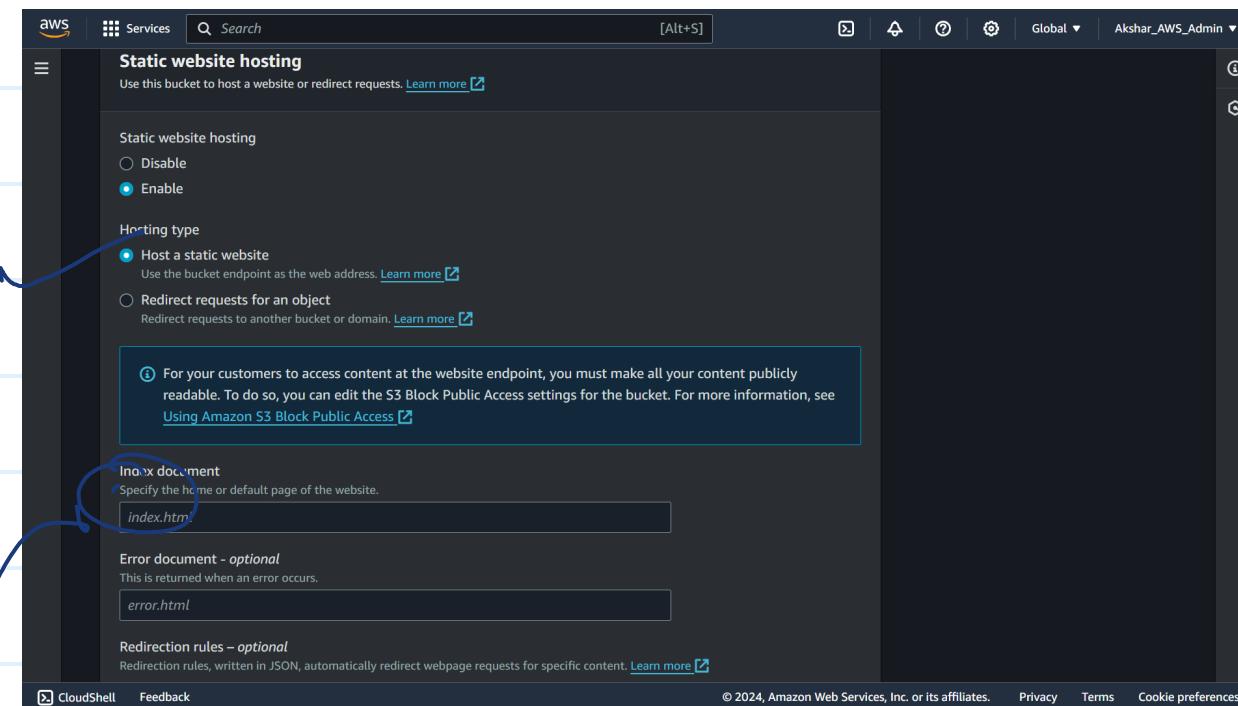
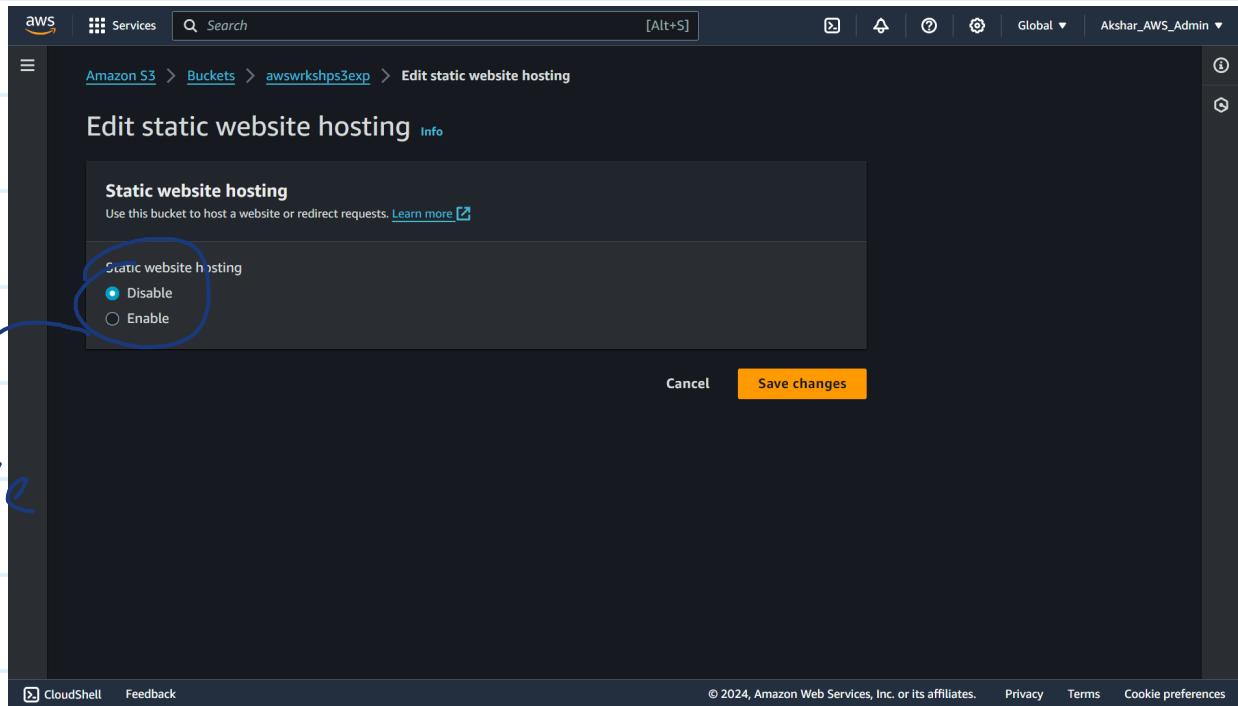
Requester pays Disabled

Static website hosting Edit

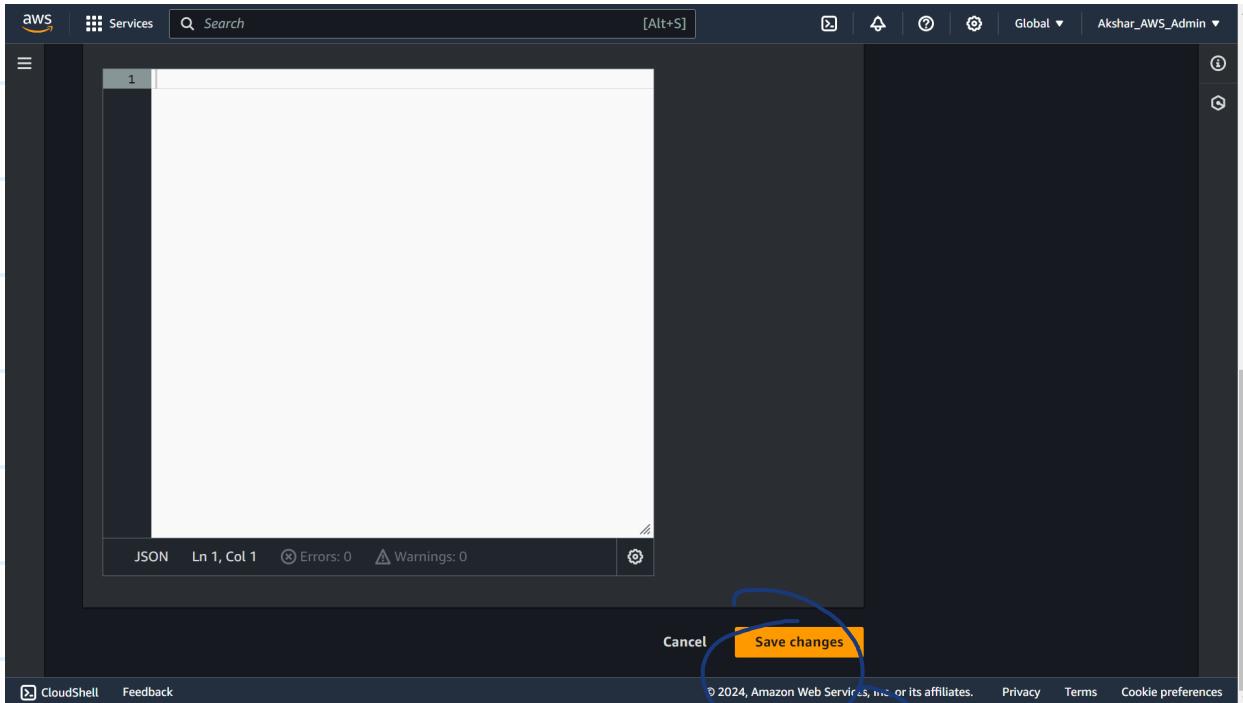
Use this bucket to host a website or redirect requests. [Learn more](#)

Static website hosting Disabled

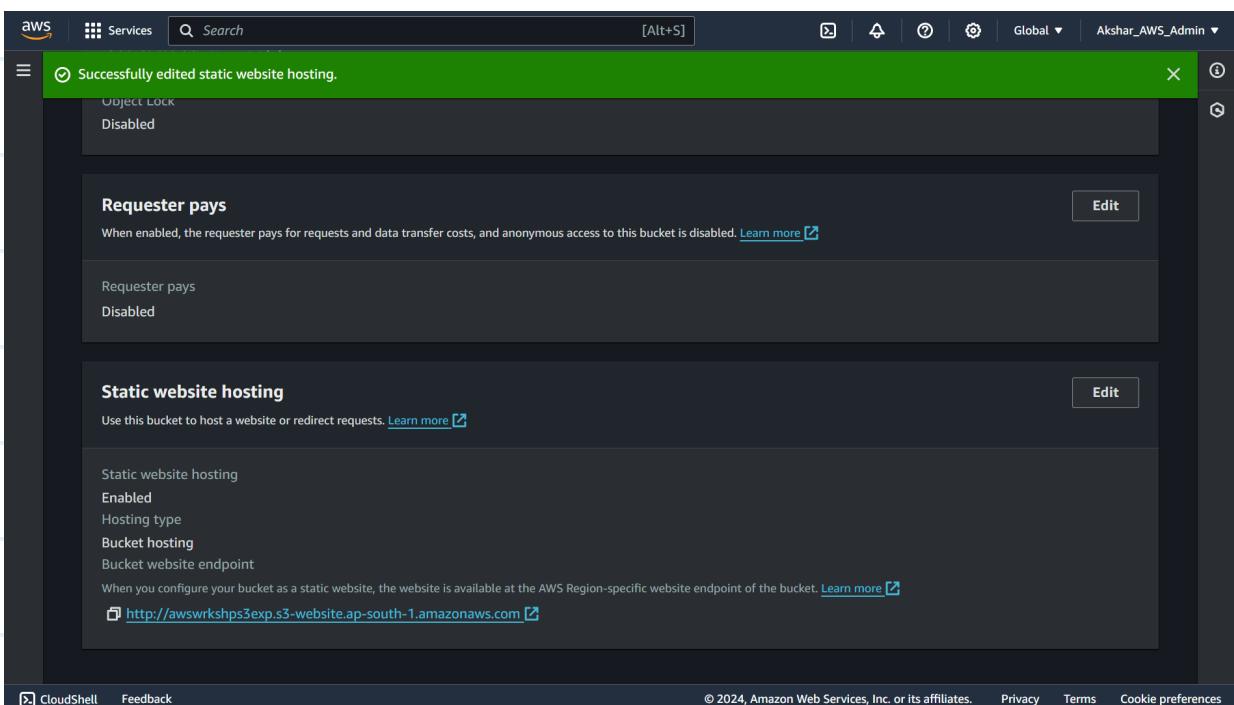
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index.html or your index document Scrolldown

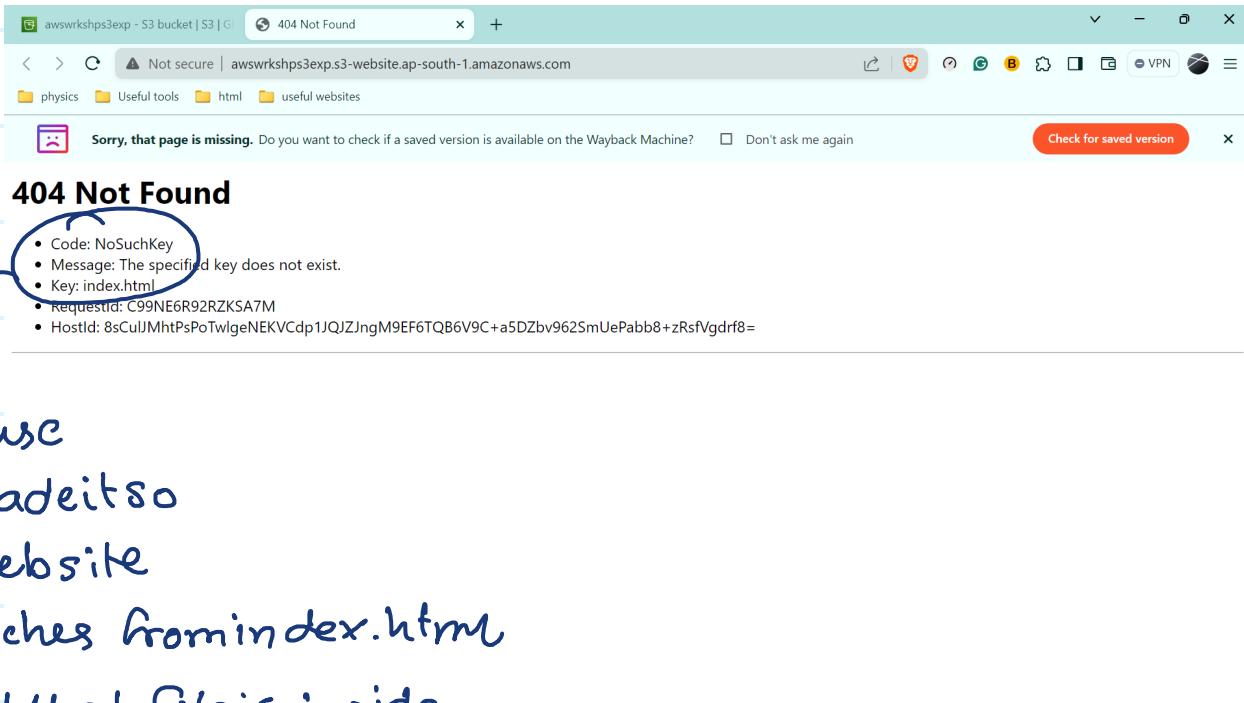


Now again in properties of your bucket
you will see URL for your website.



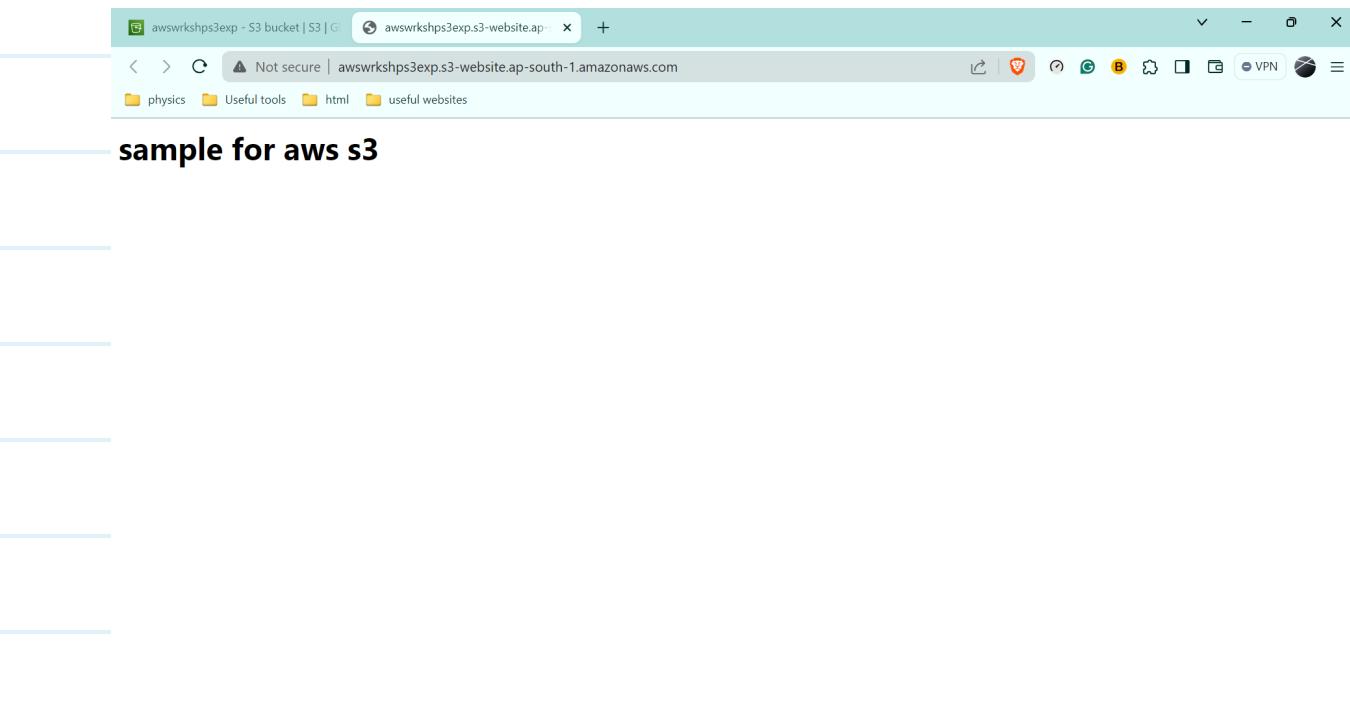
But it showed access denied as we have not made
bucket access public

Go to permissions and in ACL change permission just as we did for file and folder.



Because
we made it so
our website
launches from index.html
but that file is inside
a folder inside bucket

bring that file out of folder
and try again.



You can connect other services like SNS to our bucket just as we did with ASG and there is a functionality called bucket versioning

Next task

create another bucket with bucket versioning enabled.

The screenshot shows the 'Create bucket' wizard. In the 'General configuration' step, the AWS Region is set to 'Asia Pacific (Mumbai) ap-south-1'. The Bucket name is 'awswrksphs3awsbucketversioning'. Under 'Object Ownership', 'ACLs disabled (recommended)' is selected. At the bottom, there are links for CloudShell, Feedback, and cookie preferences.

This screenshot is identical to the one above, but with a blue circle highlighting the 'Object Ownership' section. A handwritten note 'ACL enabled' is written next to the 'ACLs enabled' radio button. A blue arrow points from the note to the 'ACLs enabled' button.

ACL
enabled

Block Public Access settings for this bucket

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to this bucket and its objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to this bucket or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

Block all public access
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

- Block public access to buckets and objects granted through new access control lists (ACLs)**
S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.
- Block public access to buckets and objects granted through any access control lists (ACLs)**
S3 will ignore all ACLs that grant public access to buckets and objects.
- Block public access to buckets and objects granted through new public bucket or access point policies**
S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.
- Block public and cross-account access to buckets and objects through any public bucket or access point policies**
S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.

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Bucket Versioning

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. [Learn more](#)

Disable
 Enable

Tags - optional (0)
You can use bucket tags to track storage costs and organize buckets. [Learn more](#)

No tags associated with this bucket.
[Add tag](#)

Default encryption [Info](#)

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Default encryption [Info](#)
Server-side encryption is automatically applied to new objects stored in this bucket.

Encryption type [Info](#)
 Server-side encryption with Amazon S3 managed keys (SSE-S3)
 Server-side encryption with AWS Key Management Service keys (SSE-KMS)
 Dual-layer server-side encryption with AWS Key Management Service keys (DSS-E-KMS)
Secure your objects with two separate layers of encryption. For details on pricing, see DSS-E-KMS pricing on the Storage tab of the [Amazon S3 pricing page](#).

Bucket Key
Using a bucket key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSS-E-KMS. [Learn more](#)
 Disable
 Enable

Advanced settings

Note After creating the bucket, you can upload files and folders to the bucket, and configure additional bucket settings.

[Cancel](#) **Create bucket**

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create bucket

then upload a file again

The screenshot shows the AWS CloudWatch Metrics Insights console. A green banner at the top indicates "Upload succeeded". Below it, a message says "The information below will no longer be available after you navigate away from this page." A "Summary" section shows the destination as "s3://awswrkshps3awsbucketversioning" with 1 file successfully uploaded (77.0 B) and 0 files failed. The "Files and folders" tab is selected, displaying a table with one entry: "index.html" (text/html, 77.0 B, Succeeded). The bottom of the screen includes standard AWS navigation links like CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

The screenshot shows the AWS S3 console. The path is "Amazon S3 > Buckets > awswrkshps3awsbucketversioning". The bucket name is "awswrkshps3awsbucketversioning". The "Objects" tab is selected, showing a table with one object: "index.html" (html, March 16, 2024, 11:40:07 UTC+05:30, 77.0 B, Standard storage class). The table includes columns for Name, Type, Last modified, Size, and Storage class. The bottom of the screen includes standard AWS navigation links like CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

Now delete above file

No files but because we had bucket versioning turned on we are shown show versions option toggle that

awsrukshps3awsbucketversioning

Objects (0) Info

Actions ▾ Create folder Upload

No objects. You don't have any objects in this bucket. Upload

Name	Type	Last modified	Size	Storage class
------	------	---------------	------	---------------

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No files but because
we had bucket
versioning turned on we are
shown show versions option
toggle that

awsrukshps3awsbucketversioning

Objects (2) Info

Actions ▾ Create folder Upload

Name	Type	Version ID	Last modified	Size	Storage class
index.html	html	mZLfq_DUU vtvn6Ehc.y2 FJkuCuuIqg TY	March 16, 2024, 11:41:47 (UTC+05:30)	0 B	-
index.html	html	OoCYJL76F vCIWGBH ID.iV1jZ7.H wu	March 16, 2024, 11:40:07 (UTC+05:30)	77.0 B	Standard

if will show deletion of a file with that file name and a delete marker

To restore file just delete the delete marker

(because no data of live project gets deleted permanently just gets its ID changes and unassociated)

so when marker is removed ID is reassociated.

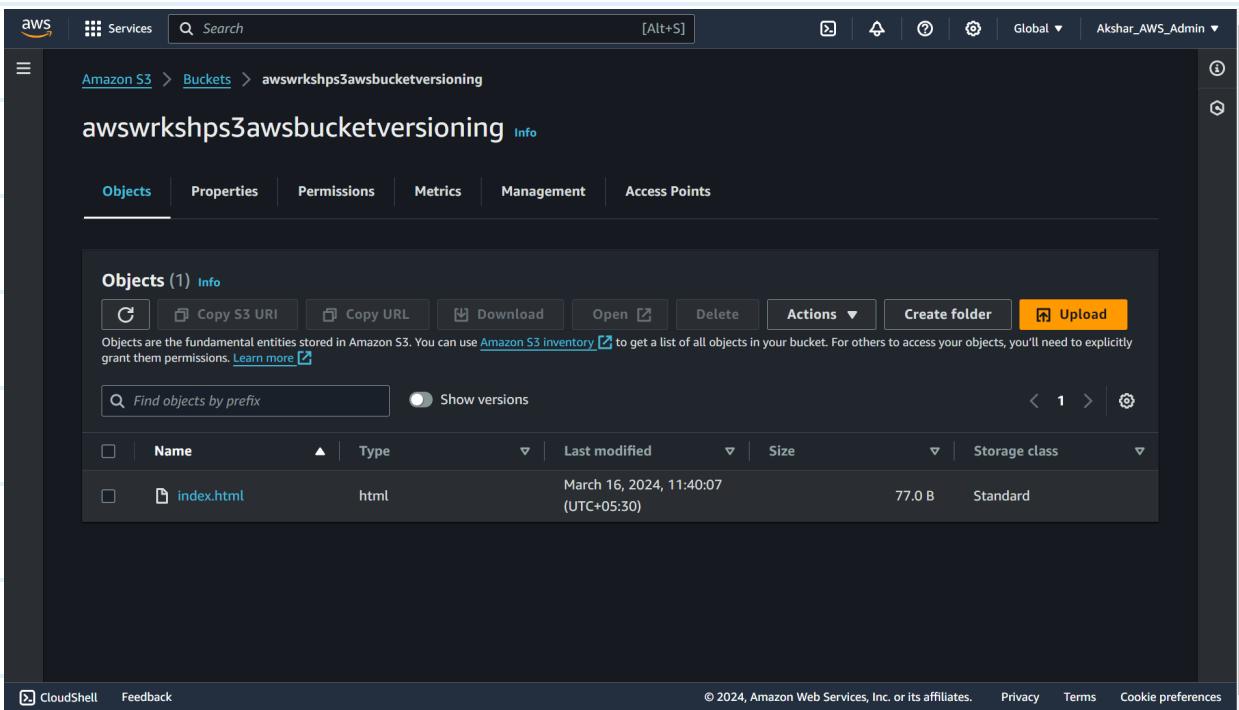
Name	Type	Version ID	Last modified	Size	Storage class
<input checked="" type="checkbox"/> index.html	Delete marker	mZLfq_DUU vtn6EhcY2 FJkuCuuIqg TY	March 16, 2024, 11:41:47 (UTC+05:30)	0 B	-
<input type="checkbox"/> index.html	html	O0cYJJL76F vCiWGGBHIp Id.iVjZ7.H wu	March 16, 2024, 11:40:07 (UTC+05:30)	77.0 B	Standard

2 then
delete
it.

Select

I delete
marker
associated

Now in bucket we can see our file again



The screenshot shows the AWS S3 console interface. At the top, there's a navigation bar with 'Services' and a search bar. Below it, the path 'Amazon S3 > Buckets > awswrkshps3awsbucketversioning' is shown. The main area is titled 'awswrkshps3awsbucketversioning' with a 'Info' link. A horizontal menu bar below the title includes 'Objects', 'Properties', 'Permissions', 'Metrics', 'Management', and 'Access Points'. The 'Objects' tab is selected. Under 'Objects (1) Info', there's a toolbar with actions like 'Copy S3 URI', 'Copy URL', 'Download', 'Open', 'Delete', 'Actions', 'Create folder', and 'Upload'. A note below the toolbar states: 'Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)'. A search bar and a 'Show versions' button are also present. The main table lists one object: 'index.html' (Type: html, Last modified: March 16, 2024, 11:40:07 (UTC+05:30), Size: 77.0 B, Storage class: Standard). At the bottom of the page, there are links for 'CloudShell', 'Feedback', and copyright information: '© 2024, Amazon Web Services, Inc. or its affiliates.' followed by 'Privacy', 'Terms', and 'Cookie preferences'.

This process can be done when updating a file
 meaning a file is replaced with its updated version
 then delete previous file's deletemarker to
 get back older version of file.

To delete bucket first empty bucket delete everything and then delete bucket.

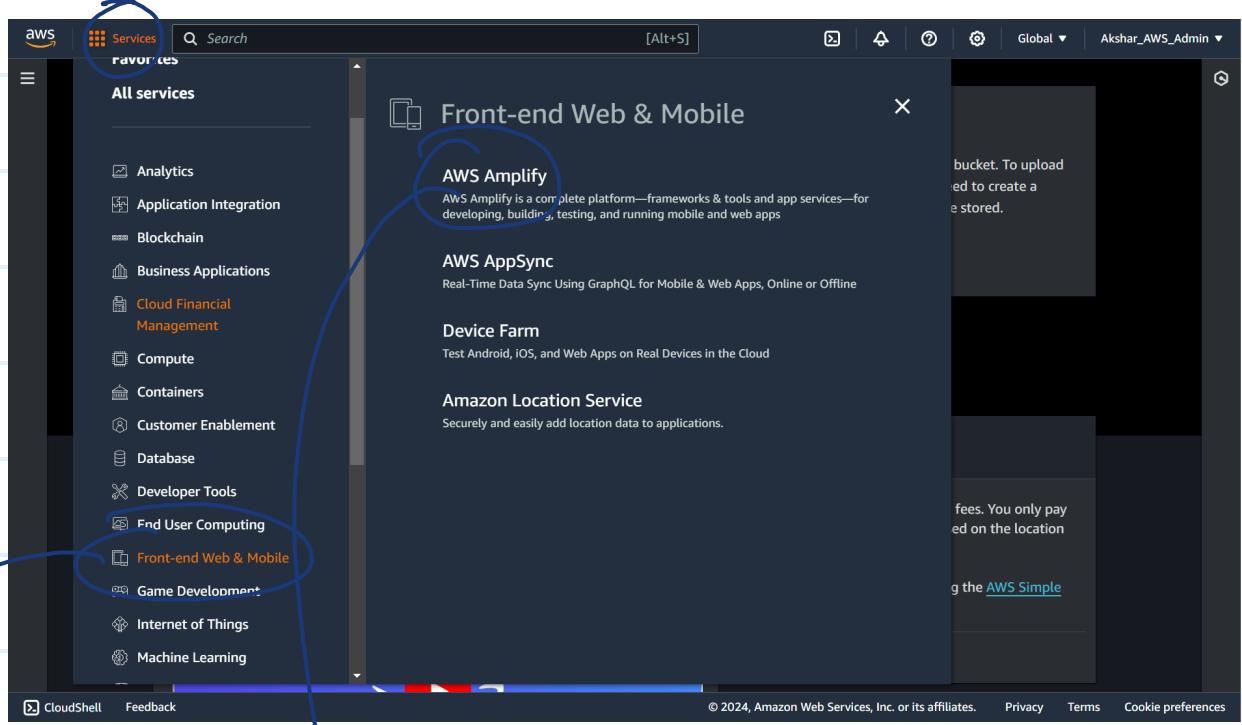
AWS managed service

Amplify

Which enables us to deploy our frontend project through AWS directly.

- first we need to have our react front files ready on local machine and create a build file of those react files after that compress it to zip

1 In services



2 front end web & mobile

3 select AWS amplify

AWS Amplify

All apps
Manage Sandboxes (New)

Documentation [\[2\]](#)
Support [\[2\]](#)

AWS Amplify

Public Preview: AWS Amplify's code-first developer experience (Gen 2) for building backends
A new TypeScript based approach for building fullstack apps with AWS Amplify. [Learn more](#) [\[2\]](#)

Try Amplify Gen 2

AWS Amplify

Fastest, easiest way to develop mobile and web apps that scale.

GET STARTED

AWS Amplify is a set of products and tools that enable mobile and front-end web developers to build and deploy secure, scalable full-stack applications, powered by AWS.

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AWS Amplify

All apps
Manage Sandboxes (New)

Documentation [\[2\]](#)
Support [\[2\]](#)

Get started

Amplify Studio

Build an app

Build an app backend with auth, data, and storage, and create custom UI components. Then integrate them in your app with just a few steps.

Get started

Amplify Hosting

Host your web app

Connect your Git repository to continuously deploy your frontend and backend. Host it on a globally available CDN.

Get started

Already have existing Cognito, S3, or other AWS resources? Connect to them from your app with the Amplify Libraries. [Go to docs](#) [\[2\]](#)

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Get started with Amplify Hosting

Amplify Hosting is a fully managed hosting service for web apps. Connect your repository to build, deploy, and host your web app.

From your existing code

Connect your source code from a Git repository or upload files to host a web app in minutes.

- GitHub
- Bitbucket
- GitLab
- AWS CodeCommit
- Deploy without Git provider

Continue

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deploy without Git provider

Start a manual deployment

App name
Give this app a name or we will generate a default for you

Environment name
Give this resource a meaningful environment name, like dev, test, or prod, or we will generate a default for you

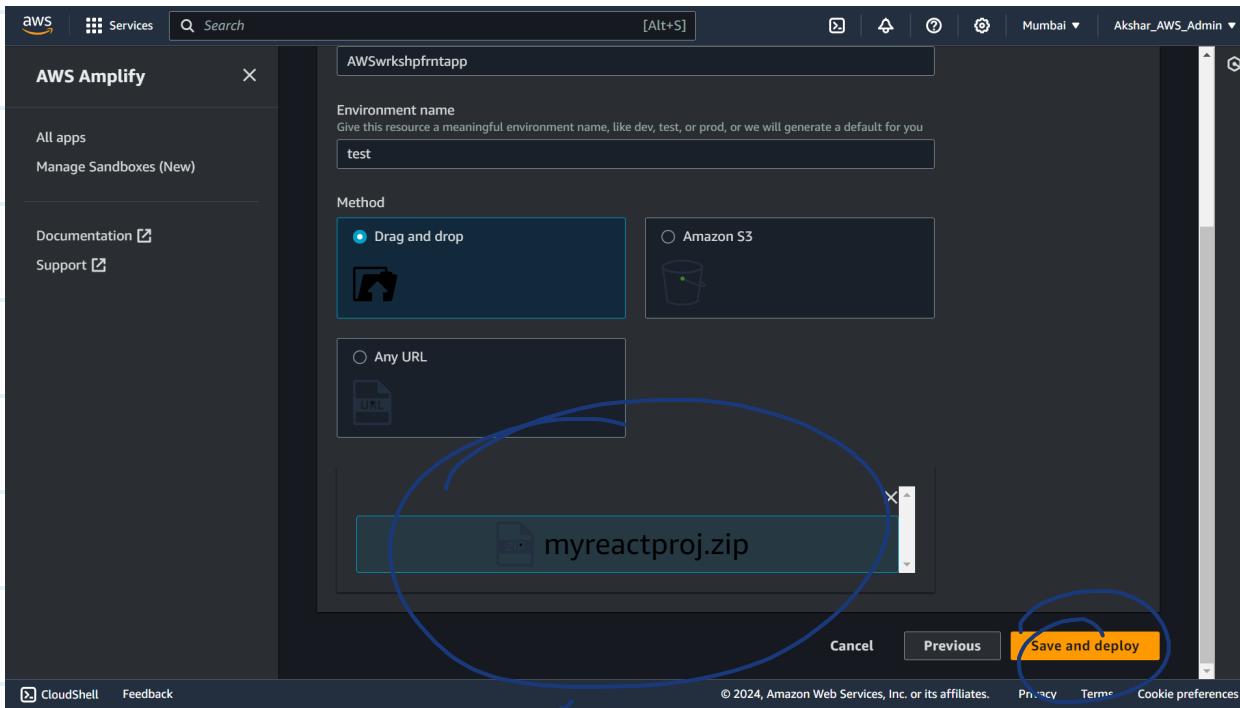
Method

- Drag and drop
- Amazon S3
- Any URL

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fill these details

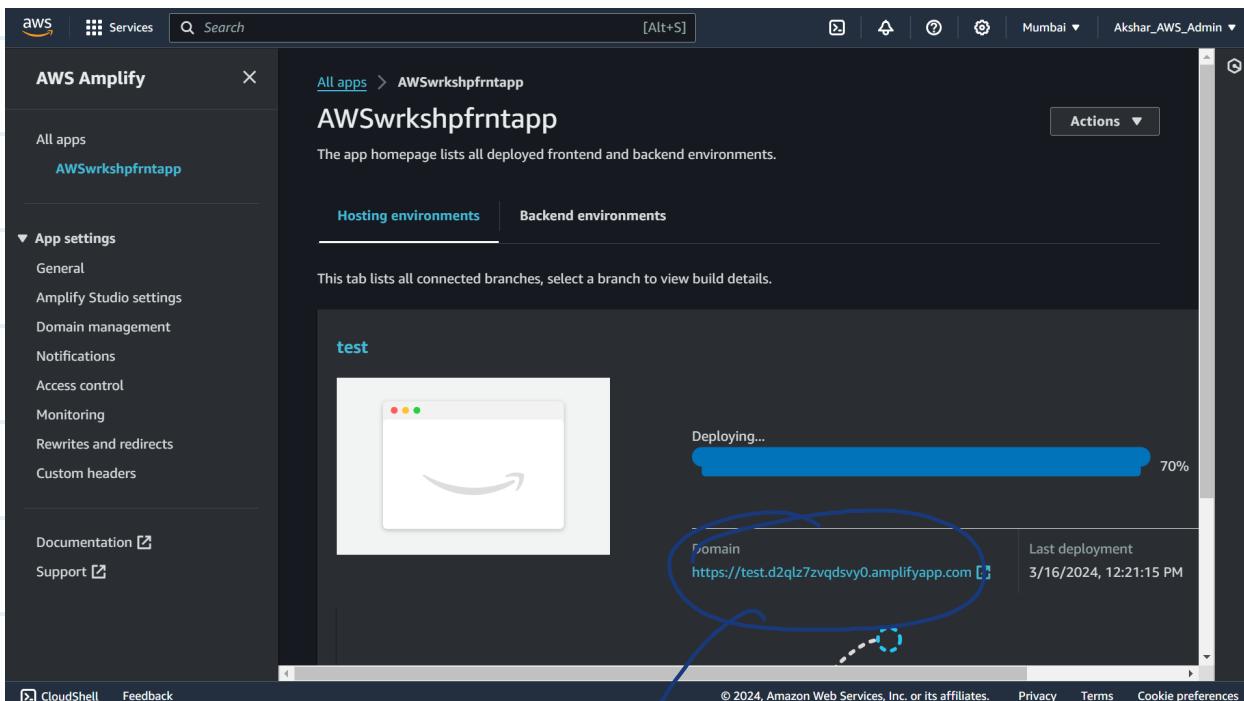
drag and drop your react build's zip here.



1 zip file uploaded

2 save and deploy

following process will show.



URL click to see your project deployed after deploying is completed.

The screenshot shows the AWS Amplify console interface. On the left, a sidebar lists 'App settings' (General, Amplify Studio settings, Domain management, Notifications, Access control, Monitoring, Rewrites and redirects, Custom headers), 'Documentation', and 'Support'. The main area displays a deployment status message: 'Deployment successfully completed.' Below this, it shows the 'Domain' as <https://test.d2qlz7vqdsy0.amplifyapp.com> and the 'Last deployment' date as 3/16/2024, 12:21:15 PM. A large blue arrow points from the handwritten note 'Deployment complete' towards the deployment status message.

Deployment
complete

Try opening on
URL

AWS and DataBases

Read Replica

- Readonly copy of your production database
- Achieved by asynch replication of primary RDS (Relational Database Service)
- Used for very read heavy database workloads
- You can have up to 5 RRs of any database
- Each replica with its own DNS
- You have Replica of read replicas but latency will be there.

Task Database operations with AWS

1 In services

different databases

The screenshot shows the AWS Services menu with the 'Database' section highlighted. The 'Database' section includes links to various AWS services: Amazon DocumentDB, DynamoDB, ElastiCache, Amazon Keyspaces, Amazon MemoryDB for Redis, Neptune, and Amazon QLDB. The 'RDS' link is circled in blue.

2 database

3 go to RDS

It is another managed service of AWS
just as amplify.

The screenshot shows the Amazon RDS dashboard. It features a sidebar with options like Dashboard, Databases, Query Editor, Performance insights, Snapshots, Exports in Amazon S3, Automated backups, Reserved instances, Proxies, Subnet groups, Parameter groups, Option groups, Custom engine versions, Events, and Event subscriptions. A prominent blue callout box in the center says 'Try the new Amazon RDS Multi-AZ deployment option for MySQL and PostgreSQL' and provides a 'Create database' button, which is circled in blue. To the right, there is a handwritten note 'create database'. Below the callout, the 'Resources' section displays usage statistics for various Amazon RDS resources in the Asia Pacific (Mumbai) region.

create
database

The screenshot shows the 'Create database' wizard in the AWS RDS console. The first step, 'Choose a database creation method', has 'Standard create' selected. The second step, 'Engine options', shows four engine types: 'Aurora (MySQL Compatible)' (selected), 'Aurora (PostgreSQL Compatible)', 'MySQL' (selected), and 'MariaDB'. A callout arrow from the handwritten note 'Stand by' points to the 'MySQL' option. The right sidebar provides a summary of MySQL features.

MySQL

- MySQL is the most popular open source database in the world.
- MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.
- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

MySQL

Free tier
Other might be
priced

The screenshot shows the configuration page for the MySQL Community edition. It includes sections for 'Edition' (selected: MySQL Community), 'Known issues/limitations' (with a link to learn about potential compatibility issues), 'Engine version' (selected: MySQL 8.0.36), 'Templates' (Production selected), and a sidebar with MySQL features. A callout arrow from the handwritten note 'Select version of MySQL' points to the 'Engine Version' dropdown.

MySQL

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- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

Select version of MySQL

The screenshot shows the AWS RDS MySQL creation wizard. In the 'Templates' section, the 'Free tier' option is selected and highlighted with a blue circle. A callout bubble on the right provides a detailed description of the Free tier, mentioning its cost-effectiveness for development and testing. The 'Availability and durability' section lists deployment options: Multi-AZ DB Cluster, Multi-AZ DB Instance (not supported for Multi-AZ DB cluster snapshot), and Single DB instance (not supported for Multi-AZ DB cluster snapshot). The 'Single DB instance' option is selected. A handwritten note on the right says 'Select Free tier Template'.

The screenshot shows the 'MySQL' configuration page. Under 'Credentials Settings', the 'Self managed' option is selected and highlighted with a blue circle. A callout bubble on the right provides a detailed description of the MySQL service, mentioning its popularity and various instance classes. The 'Master password' field is populated with 'admin'. A handwritten note on the right says '1 Name your Database'.

4 create password

1 Name your Database

2 Create master user

3 make it selfmanaged

aws Services Search [Alt+S] Mumbai Akshar_AWS_Admin

Confirm master password [Info](#)

Instance configuration
The DB instance configuration options below are limited to those supported by the engine that you selected above.

DB instance class [Info](#)
▼ Hide filters

- Include previous generation classes
- Standard classes (includes m classes)
- Memory optimized classes (includes r and x classes)
- Burstable classes (includes t classes)**

db.t3.micro
2 vCPUs 1 GiB RAM Network: 2,085 Mbps

Storage

Storage type [Info](#)
Provisioned IOPS SSD (io2) storage volumes are now available.
General Purpose SSD (gp2)

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aws Services Search [Alt+S] Mumbai Akshar_AWS_Admin

2 vCPUs 1 GiB RAM Network: 2,085 Mbps

Storage

Storage type [Info](#)
Provisioned IOPS SSD (io2) storage volumes are now available.
General Purpose SSD (gp2)
Baseline performance determined by volume size

Allocated storage [Info](#)
15 GiB

The minimum value is 20 GiB and the maximum value is 6,144 GiB

After you modify the storage for a DB instance, the status of the DB instance will be in storage-optimization. Your instance will remain available as the storage-optimization operation completes. [Learn more](#)

► Storage autoscaling

Connectivity [Info](#)

Compute resource

Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change

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AWS Services Search [Alt+S] Mumbai Akshar_AWS_Admin 176

Connectivity Info

Compute resource
Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.

Don't connect to an EC2 compute resource
Don't set up a connection to a compute resource for this database. You can manually set up a connection to a compute resource later.

Connect to an EC2 compute resource
Set up a connection to an EC2 compute resource for this database.

Network type Info
To use dual-stack mode, make sure that you associate an IPv6 CIDR block with a subnet in the VPC you specify.

IPv4
Your resources can communicate only over the IPv4 addressing protocol.

Dual-stack mode
Your resources can communicate over IPv4, IPv6, or both.

Virtual private cloud (VPC) Info
Choose the VPC. The VPC defines the virtual networking environment for this DB instance.

Default VPC (vpc-0535997132a5b9073)
3 Subnets, 3 Availability Zones

Only VPCs with a corresponding DB subnet group are listed.

After a database is created, you can't change its VPC.

DB subnet group Info
Choose the DB subnet group. The DB subnet group defines which subnets and IP ranges the DB instance can use in the VPC that you selected.

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MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

To connect to an EC2 through IP4

AWS Services Search [Alt+S] Mumbai Akshar_AWS_Admin 176

After a database is created, you can't change its VPC.

DB subnet group Info
Choose the DB subnet group. The DB subnet group defines which subnets and IP ranges the DB instance can use in the VPC that you selected.

default

Public access: Yes
RDS assigns a public IP address to the database. Amazon EC2 instances and other resources outside of the VPC can connect to your database. Resources inside the VPC can also connect to the database. Choose one or more VPC security groups that specify which resources can connect to the database.

No
RDS doesn't assign a public IP address to the database. Only Amazon EC2 instances and other resources inside the VPC can connect to your database. Choose one or more VPC security groups that specify which resources can connect to the database.

VPC security group (firewall) Info
Choose one or more VPC security groups to allow access to your database. Make sure that the security group rules allow the appropriate incoming traffic.

Choose existing
Choose existing VPC security groups

Create new
Create new VPC security group

Existing VPC security groups
Choose one or more options

default X

Availability Zone Info

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MySQL

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- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

choose yes to grant public Access

choose security group if no choose default

mysql default port is 3306
for that we need a custom security group with port enabled for that goto EC2 dashboard inside bar create security group with above port enabled then add it above.

Resources

You are using the following Amazon EC2 resources in the Asia Pacific (Mumbai) Region:

Instances (running)	0	Auto Scaling Groups	0	Dedicated Hosts	0
Elastic IPs	0	Instances	0	Key pairs	0
Load balancers	0	Placement groups	0	Security groups	1
Snapshots	0	Volumes	0		

Launch instance
To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

Service health
AWS Health Dashboard

Region: Asia Pacific (Mumbai)
Status: This service is operating normally.

Zones

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Inbound rules

Type	Info	Protocol	Port range	Info	Source	Info	Description - optional	Info
Custom TCP	Info	TCP	0	Cu... ▾	<input type="text"/>	<input type="button"/>	<input type="text"/>	<input type="button"/>
MYSQL/Aurora	Info	TCP	3306	A... ▾	<input type="text"/>	<input type="button"/>	<input type="text"/>	<input type="button"/>

Outbound rules

Type	Info	Protocol	Port range	Info	Destination	Info	Description - optional	Info

⚠ Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only. X

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Inbound
must
have
a rule
with this and anywhere IP's

and outbound must have

Outbound rules

Type	Protocol	Port range	Destination	Description - optional
All traffic	All	All	0.0.0.0/0	
Custom TCP	TCP	0	Cu...	

Add rule

⚠ Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

All traffic with anywhere
then continue DB creation as below

MySQL

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- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

Public access

Yes

RDS assigns a public IP address to the database. Amazon EC2 instances and other resources outside of the VPC can connect to your database. Resources inside the VPC can also connect to the database. Choose one or more VPC security groups that specify which resources can connect to the database.

No

RDS doesn't assign a public IP address to the database. Only Amazon EC2 instances and other resources inside the VPC can connect to your database. Choose one or more VPC security groups that specify which resources can connect to the database.

VPC security group (firewall)

Choose one or more VPC security groups to allow access to your database. Make sure that the security group rules allow the appropriate incoming traffic.

Choose existing

Choose existing VPC security groups

Create new

Create new VPC security group

Existing VPC security groups

Choose one or more options

AWSwrkshpDBexp_SG X default X

Availability Zone

No preference

RDS Proxy

RDS Proxy is a fully managed, highly available database proxy that improves application scalability, resiliency, and security.

Create an RDS Proxy

RDS automatically creates an IAM role and a Secrets Manager secret for the proxy. RDS Proxy has additional costs. For more information, see [Amazon RDS Proxy pricing](#).

Certificate authority - optional

Select our security group as well

aws Services Search [Alt+S] Mumbai Akshar_AWS_Admin

MySQL

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- Supports automated backup and point-in-time recovery.
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Database authentication

Database authentication options [Info](#)

- Password authentication**
Authenticates using database passwords.
- Password and IAM database authentication**
Authenticates using the database password and user credentials through AWS IAM users and roles.
- Password and Kerberos authentication**
Choose a directory in which you want to allow authorized users to authenticate with this DB instance using Kerberos Authentication.

Monitoring

Enable Enhanced Monitoring
Enabling Enhanced Monitoring metrics are useful when you want to see how different processes or threads use the CPU.

Additional configuration

Database options, encryption turned on, backup turned on, backtrack turned off, maintenance, CloudWatch Logs, delete protection turned off.

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In additional config

Initial db name

MySQL

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Monitoring

Enable Enhanced Monitoring
Enabling Enhanced Monitoring metrics are useful when you want to see how different processes or threads use the CPU.

Additional configuration

Database options, encryption turned on, backup turned on, backtrack turned off, maintenance, CloudWatch Logs, delete protection turned off.

Database options

Initial database name [Info](#)

If you do not specify a database name, Amazon RDS does not create a database.

DB parameter group [Info](#)

default.mysql8.0

Option group [Info](#)

default:mysql-8-0

Backup

Enable automated backups
Creates a point-in-time snapshot of your database

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Enable backup

backup will stay available for

MySQL

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- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

DB parameter group [Info](#)
default.mysql8.0

Option group [Info](#)
default:mysql-8-0

Backup

Enable automated backups
Creates a point-in-time snapshot of your database

Note: Please note that automated backups are currently supported for InnoDB storage engine only. If you are using MyISAM, refer to details [here](#).

Backup retention period [Info](#)
The number of days (1-35) for which automatic backups are kept.
1 day

Backup window [Info](#)
The daily time range (in UTC) during which RDS takes automated backups.
 Choose a window
 No preference

Copy tags to snapshots

Backup replication [Info](#)

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SQL
 Version upgrade
 deletion protection
 do if desired.

MySQL

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- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

Created database.

It will take sometime

Amazon RDS

Databases

RDS Databases

Databases (1)

DB Identifier	Status	Role	Engine	Region & AZ	Size
databaseawsworkshop1	Creating	Instance	MySQL Community	-	db.t3.micro

Successfully created database **databaseawswrkshp1**
You can use settings from databaseawswrkshp1 to simplify configuration of suggested database add-ons while we finish creating your DB for you.

Databases (1)

DB identifier	Status	Role	Engine	Region & AZ	Size
databaseawswrkshp1	Backing-up	Instance	MySQL Community	ap-south-1b	db.t3.mi

Actions: Restore from S3, Create database

Filter by databases

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in
connections
credentials

Name
you
gave
as
db
identifier

Successfully created database **databaseawswrkshp1**
You can use settings from databaseawswrkshp1 to simplify configuration of suggested database add-ons while we finish creating your DB for you.

Connection details to your database databaseawswrkshp1

This is the only time you can view this password. Copy and save the password for your reference. If you lose the password, you must modify your database to change it. You can use a SQL client application or utility to connect to your database.

Master username: **admin**

Master password: **adminpass** **Copy**

Endpoint: **databaseawswrkshp1.c3gquigmexsf.ap-south-1.rds.amazonaws.com** **Copy**

Create database

CloudShell Feedback

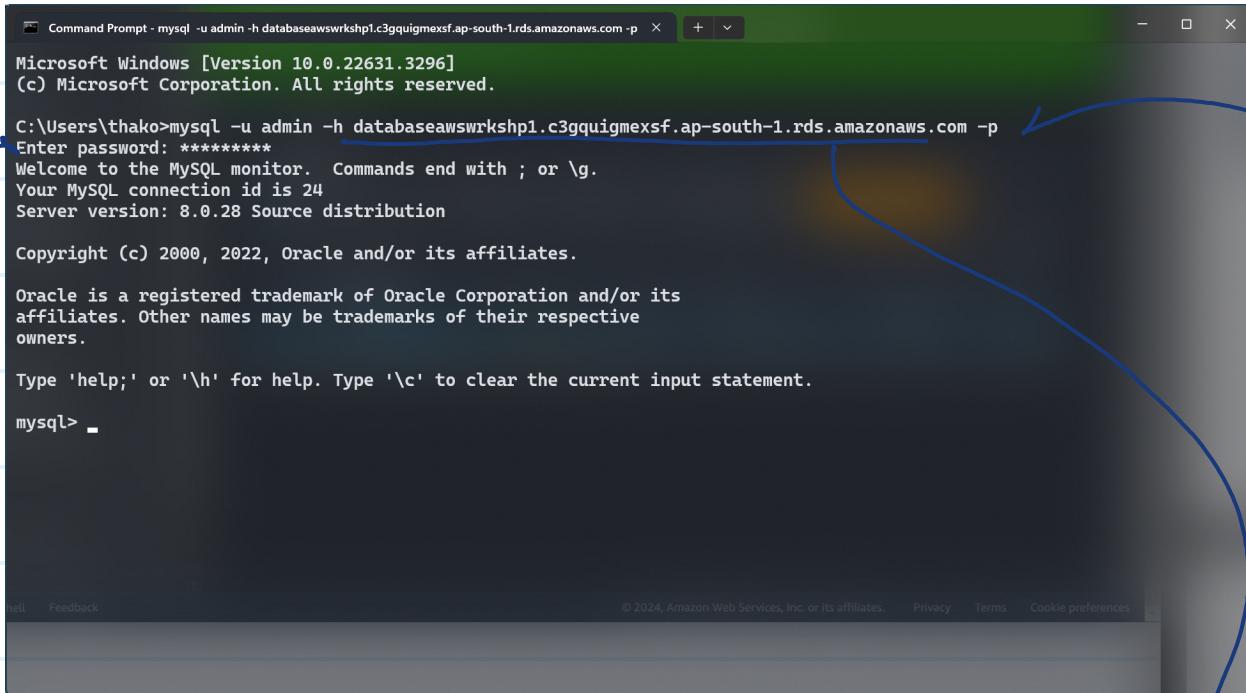
Root
User

password
URL
to access
database

↑
these are your connection credentials

how to access this database from local machine?

Open cmd



```
C:\Users\thako>mysql -u admin -h databaseawswrkshp1.c3gquigmexsf.ap-south-1.rds.amazonaws.com -p
Enter password: *****
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 24
Server version: 8.0.28 Source distribution

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affiliates. Other names may be trademarks of their respective
owners.

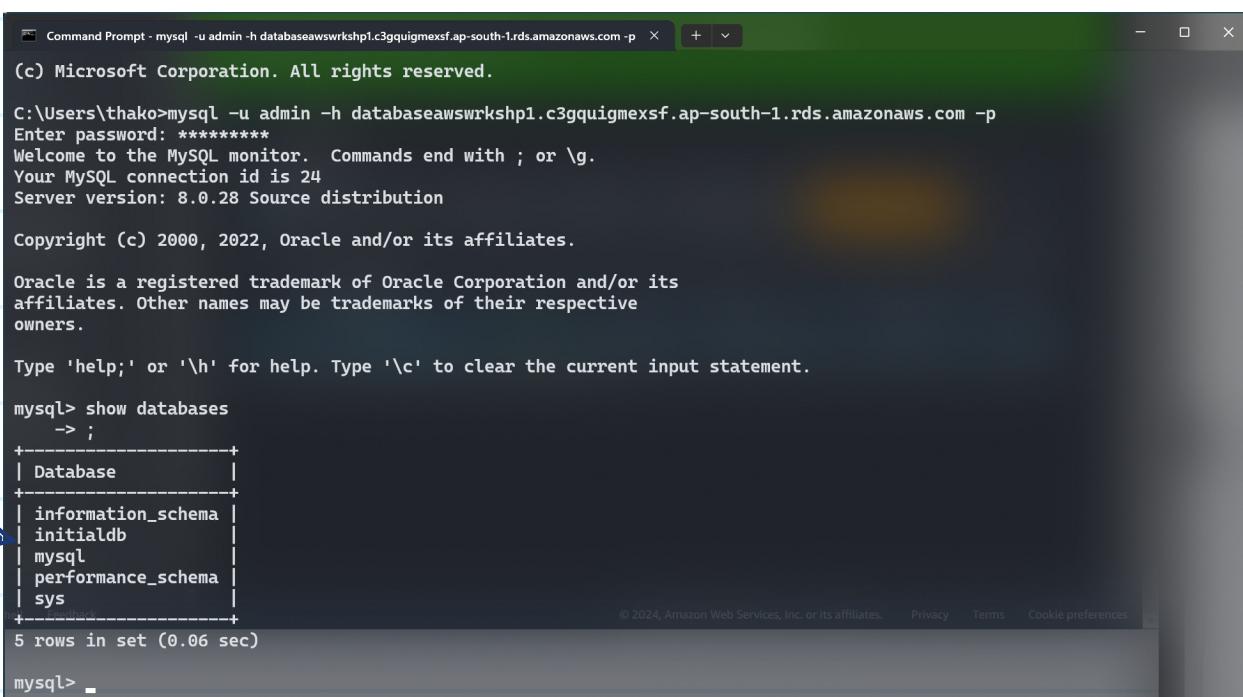
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> -
```

this
command
to
access
created
database

Enter password as made

URL we copied



```
(c) Microsoft Corporation. All rights reserved.

C:\Users\thako>mysql -u admin -h databaseawswrkshp1.c3gquigmexsf.ap-south-1.rds.amazonaws.com -p
Enter password: *****
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 24
Server version: 8.0.28 Source distribution

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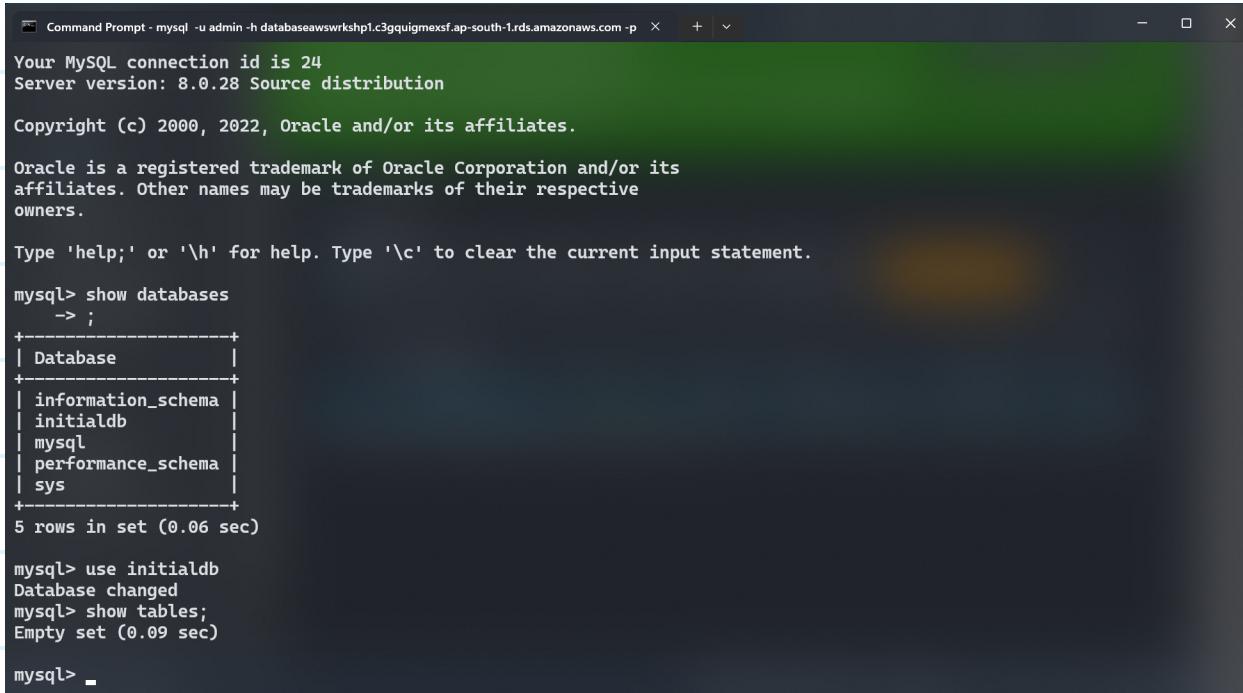
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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases
    -> ;
+-----+
| Database      |
+-----+
| information_schema |
| initialdb      |
| mysql          |
| performance_schema |
| sys            |
+-----+
5 rows in set (0.06 sec)

mysql> -
```

Initial database to be created that we named



```

Command Prompt - mysql -u admin -h databaseawswrkshp1.c3gquigmexsf.ap-south-1.rds.amazonaws.com -p
Your MySQL connection id is 24
Server version: 8.0.28 Source distribution

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases
    -> ;
+-----+
| Database |
+-----+
| information_schema |
| initialdb |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.06 sec)

mysql> use initialdb
Database changed
mysql> show tables;
Empty set (0.09 sec)

mysql> -

```

how to migrate database created on local machine
 to our AWS cloud database Take one such database
 on your local machine as example,

first create backup of your local machine's
 database

Now we use a tool as adminer

The screenshot shows the Adminer homepage. At the top, there's a navigation bar with links for Adminer, Adminer Editor, Plugins, News, Forums, Bugs, and Code. Below the navigation is a large screenshot of the Adminer interface showing a database schema for a 'albums' table. To the right of the interface, there's a text block about Adminer and a 'Download' button. A blue oval highlights the 'Download' button.

Why is Adminer better than phpMyAdmin?

Replace phpMyAdmin with Adminer and you will get a tidier user interface, better support for MySQL features, higher performance and more security. [See detailed comparison](#).

Adminer development priorities are: 1. Security, 2. User experience, 3. Performance, 4. Feature set, 5. Size.

Screenshots

<https://www.adminer.org/#download>

The screenshot shows the Adminer download page. On the left, there's a sidebar with a 'Downloads' section containing links for Adminer 4.8.1, Adminer 4.8.1 for MySQL, source codes, donation links, and a changelog. A blue arrow points from the text 'Download for MySQL' to this sidebar. On the right, there's a 'Features' section with a bulleted list of Adminer's capabilities.

Downloads

- Adminer 4.8.1 (.php, 465 kB), [English only](#) (.php, 310 kB)
- [Adminer 4.8.1 for MySQL](#) (.php, 356 kB), [English only](#) (.php, 208 kB)
- [Source codes](#) (.zip, 785 kB), [Current development version](#)
- \$ Donate: [Paypal](#), [Patreon](#), [Revolut](#)
- Latest stable version (use e.g. by wget): [https://www.adminer.org/latest\[-mysql\]\[-en\].php](https://www.adminer.org/latest[-mysql][-en].php)
- [Change log](#), [blog](#)
- User contributed packages: [Debian package](#), [Arch Linux package](#), [Wordpress plugin](#), [Drupal module](#), [Docker](#), [Dockette](#), [Joomla extension](#), [Moodle plugin](#), [TYPO3 extension](#), [CMS Made Simple Module](#), [Laravel](#), [Laravel](#), [AMPSS](#), [Electron](#), [Jaxon](#)
- Adminer is also bundled with [Nette Framework](#) (which this site runs on).
- [Older versions](#)

Features

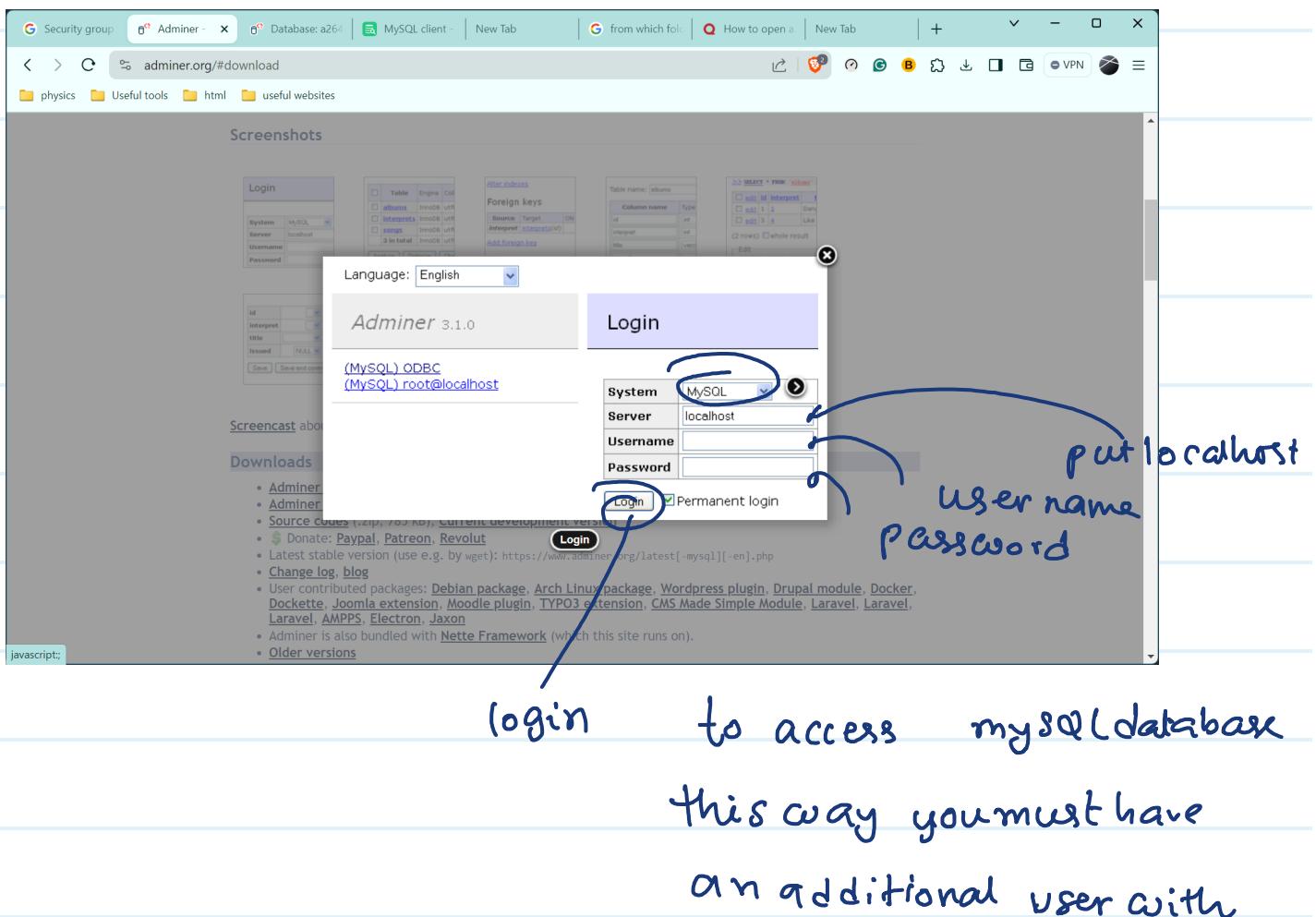
- Connect to a database server with username and password
- Select an existing database or create a new one
- List fields, indexes, foreign keys and triggers of table
- Change name, engine, collation, auto_increment and comment of table
- Alter name, type, collation, comment and default values of columns
- Add and drop tables and columns
- Create, alter, drop and search by indexes including fulltext
- Create, alter, drop and link lists by foreign keys
- Create, alter, drop and select from views
- Create, alter, drop and call stored procedures and functions
- Create, alter and drop triggers
- List data in tables with search, aggregate, sort and limit results
- Insert new records, update and delete the existing ones
- Supports all data types, blobs through file transfer
- Execute any SQL command from a text field or a file
- Export table structure, data, views, routines, databases to SQL or CSV
- Print database schema connected by foreign keys

https://github.com/vrana/adminer/releases/download/4.8.1/adminer-4.8.1..._kill_them

To access databases through Adminer in local machine

download above file then start xampp Apache and put localhost/
~~~~~  
filepath of file

following like interface will be shown



root user because through root user this way db can't be accessed

(if you don't have a user except root create one)

After you login following like interface will be shown

Adminer 4.8.1

DB: a264133\_0ghmteff

Tables and views

| Table             | Engine? | Collation?      | Data Length? | Index Length? | Data Free? | Auto Increment? | Rows? | Comment?   |
|-------------------|---------|-----------------|--------------|---------------|------------|-----------------|-------|------------|
| albums            | InnoDB  | utf8_general_ci | 16,384       | 16,384        | 0          | 2               | ~ 1   | Albums     |
| interprets        | InnoDB  | utf8_general_ci | 16,384       | 0             | 0          | 2               | ~ 1   | Interprets |
| songs             | InnoDB  | utf8_general_ci | 16,384       | 16,384        | 0          | 15              | ~ 14  | Songs      |
| <b>3 in total</b> |         |                 | 49,152       | 32,768        | 0          |                 |       |            |

Selected (0)

Analyze Optimize Check Repair Truncate Drop

Create table Create view

Routines

Create procedure Create function

Adminer 4.8.1

DB: a264133\_0ghmteff

SQL command Import Export Create table

select albums select interprets select songs

Output open save gzip  
Format SQL CSV CSV TSV  
Database Routines Events  
Tables DROP+CREATE Auto Increment Triggers  
Data INSERT

Tables Data  
albums ~ 1  
interprets ~ 1  
songs ~ 14

export as gzip  
SQL format  
All table and data  
export

save to local machine

access database created on AWS through adminer

1 put AWS db endpoint URL here

2 Username

3 Password

login

Here choose import option

Import

Logout

MySQL » Server » Database: a264133\_0ghmteff

Database: a264133\_0ghmteff

Alter database Database schema Privileges

Tables and views

Search data in tables (3)

| Table             | Engine? | Collation?      | Data Length? | Index Length? | Data Free? | Auto Increment? | Rows? | Comment?   |
|-------------------|---------|-----------------|--------------|---------------|------------|-----------------|-------|------------|
| albums            | InnoDB  | utf8_general_ci | 16,384       | 16,384        | 0          | 2               | ~ 1   | Albums     |
| interprets        | InnoDB  | utf8_general_ci | 16,384       | 0             | 0          | 2               | ~ 1   | Interprets |
| songs             | InnoDB  | utf8_general_ci | 16,384       | 16,384        | 0          | 15              | ~ 14  | Songs      |
| <b>3 in total</b> | InnoDB  | utf8_general_ci | 49,152       | 32,768        | 0          |                 |       |            |

Selected (0)

Analyze Optimize Check Repair Truncate Drop

Create table Create view

Routines

Create procedure Create function

Events

Security group Import - A Database: a26d MySQL client - New Tab from which fol... How to open a New Tab + - 188

demo.adminer.org/adminer.php?username=&db=a264133\_0ghmteff&import= physics Useful tools html useful websites

Language: English MySQL » Server » a264133\_0ghmteff » Import Logout

Adminer 4.8.1 DB: a264133\_0ghmteff

SQL command Import Export Create table

select albums select interprets select songs

Import

File upload SQL[.gz] (< 20MB): Choose Files No file chosen Execute

From server Webserver file adminer.sql[.gz] Run file

Stop on error  Show only errors

choose previously downloaded file here upload from local machine and Execute

The screenshot shows the Adminer Import interface. On the left, there's a sidebar with database selection and navigation links like 'select albums', 'select interprets', and 'select songs'. The main area is titled 'Import' and contains two sections: 'File upload' (with a 'Choose Files' button and an empty input field) and 'From server' (with a 'Webserver file adminer.sql[.gz]' link and a 'Run file' button). A blue oval highlights the 'File upload' section. Handwritten notes above the oval read: 'choose previously downloaded file here upload from local machine and Execute'. To the right of the notes, there's a large handwritten note: 'to get the database on localmachine Migrated to Aws Database'. Below that, another handwritten note says: 'This is DataMigration'.

to get the database on localmachine  
Migrated to Aws Database

This is DataMigration

## Task :

To create an API to access our Database created on AWS with node.js

For this

- Create EC2 instance → Ubuntu with inbound TCP and outbound anywhere TCP
  - on it install node on it
  - and create an API to interact with our AWS database

And we provide this API to access our AWS database for frontend & back end rather than letting direct access to db

After performing all task make sure to delete database in RDS dashboard → Databases → select database → Action → from UI delete

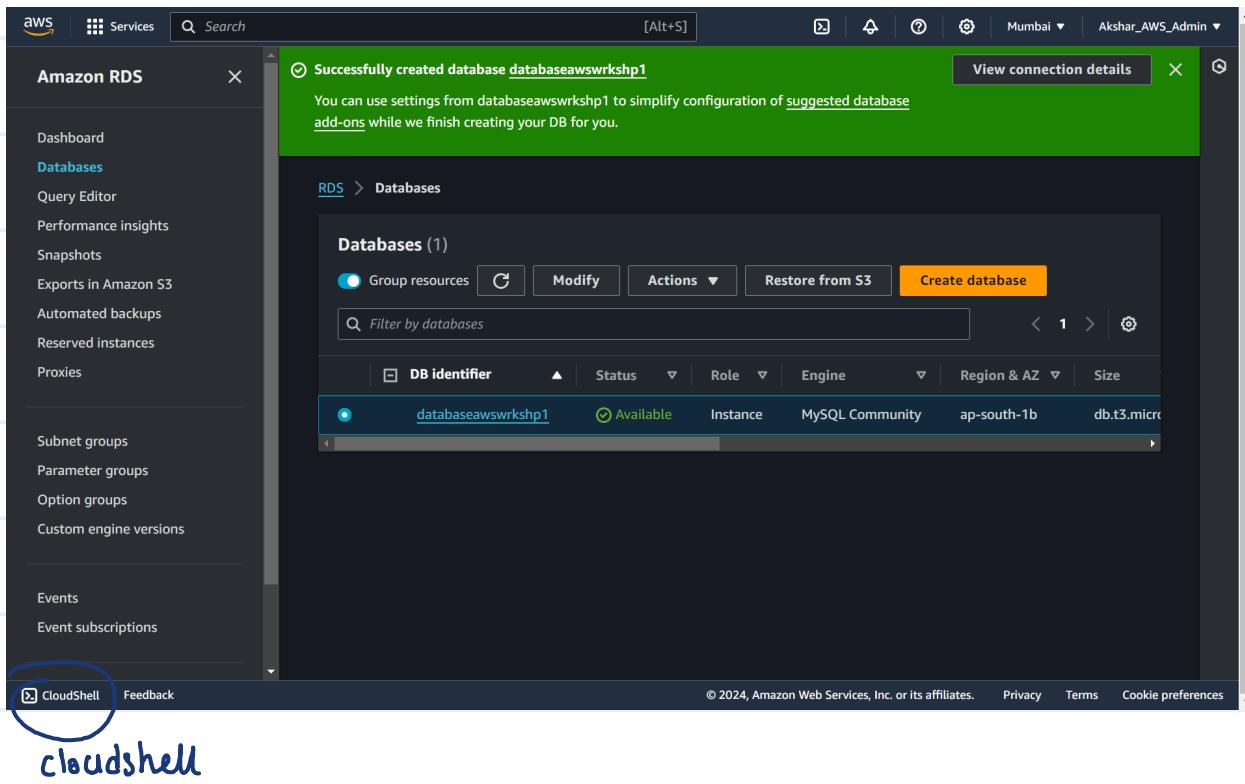
The screenshot shows the AWS RDS Databases console. On the left, a sidebar menu for 'Amazon RDS' is open, with 'Databases' selected. The main area displays a table titled 'Databases (0)' with a single row: 'No instances found'. At the top of this table, there are several buttons: 'Group resources' (radio button), 'Modify' (button), 'Actions' (button with a dropdown arrow), 'Restore from S3' (button), and 'Create database' (button). A blue circle highlights the 'Actions' button. A blue arrow points from the handwritten note '3 Actions' to this button. Another blue arrow points from the handwritten note '4 delete' to the right edge of the table.

3 Actions  
4 delete  
Select your  
active db  
here

1 databases

Task Learning coded infra setup  
 meaning writing code to use AWS services and setup AWS Infra

[SideNote : we interested with AWS platform with UI till now more faster way to interact and manage AWS is cloudshell (CL) provided by AWS for AWS)



AWS Services Search [Alt+S] Mumbai Akshar\_AWS\_Admin

Amazon RDS X

Successfully created database [databaseawwrkshp1](#)  
You can use settings from databaseawwrkshp1 to simplify configuration of [suggested database add-ons](#) while we finish creating your DB for you.

View connection details X

Dashboard  
Databases  
Query Editor  
Performance insights  
Snapshots  
Exports in Amazon S3

RDS > Databases

Databases (1)

Group resources C Modify Actions ▾ Restore from S3 Create database

CloudShell

ap-south-1

[cloudshell-user@ip-10-130-5-147 ~]\$

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