

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)

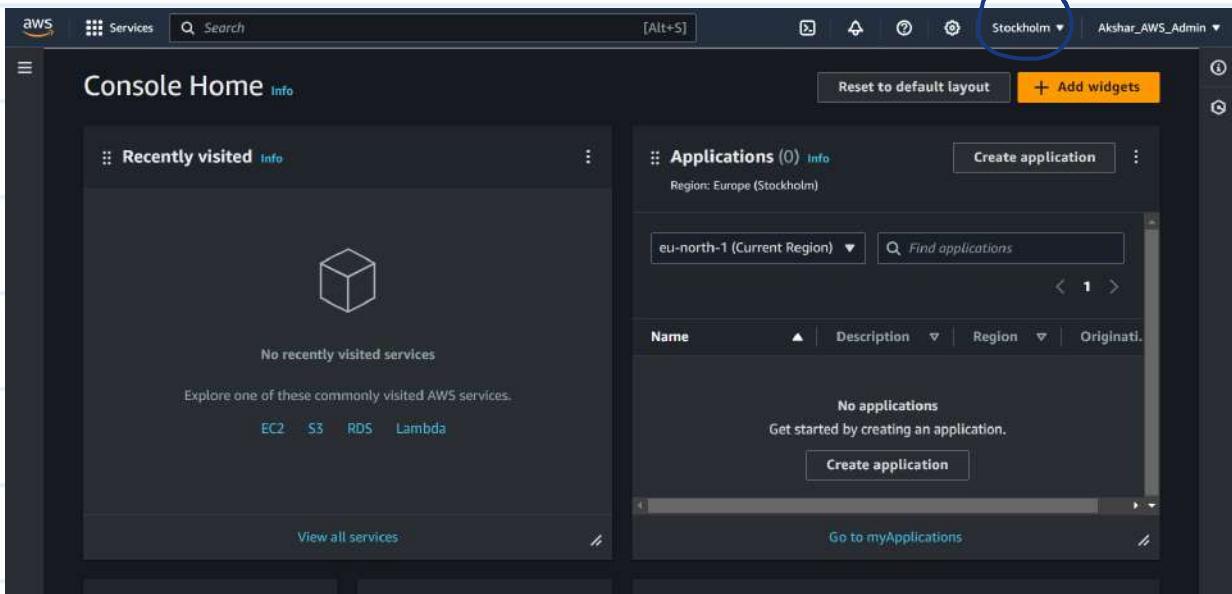
→ Associate and soon
level

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

Recently visited

No recently visited services

Explore one of these commonly visited AWS services.

EC2 S3 RDS Lambda

View all services

Applications (0)

Region: Europe (Stockholm)

eu-north-1 (Current Region) Find applications

Name Description Region Originati.

No applications

Get started by creating an application.

Create application

Reset to default layout + Add widgets

Recently visited

Favorites

All services

Analytics

Application Integration

Blockchain

Business Applications

Cloud Financial Management

Compute

Containers

Customer Enablement

Database

Developer Tools

End User Computing

Machine Learning

EC2

A blue arrow points from the 'Compute' service to the EC2 service in the sidebar.

comes under
Compute services

Recently visited

Favorites

All services

- Analytics
- Application Integration
- Blockchain
- Business Applications
- Cloud Financial Management
- Compute
- Containers
- Customer Enablement
- Database

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

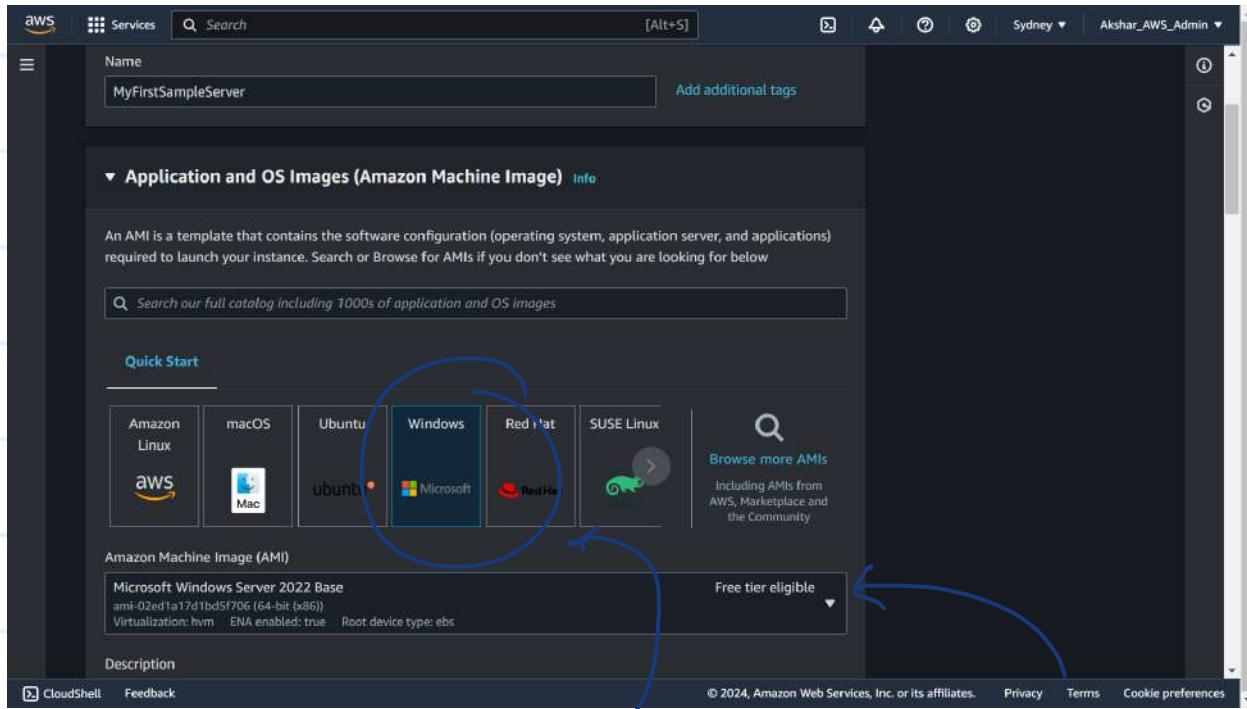
Region: Asia Pacific (Sydney)
Status: This service is operating normally.

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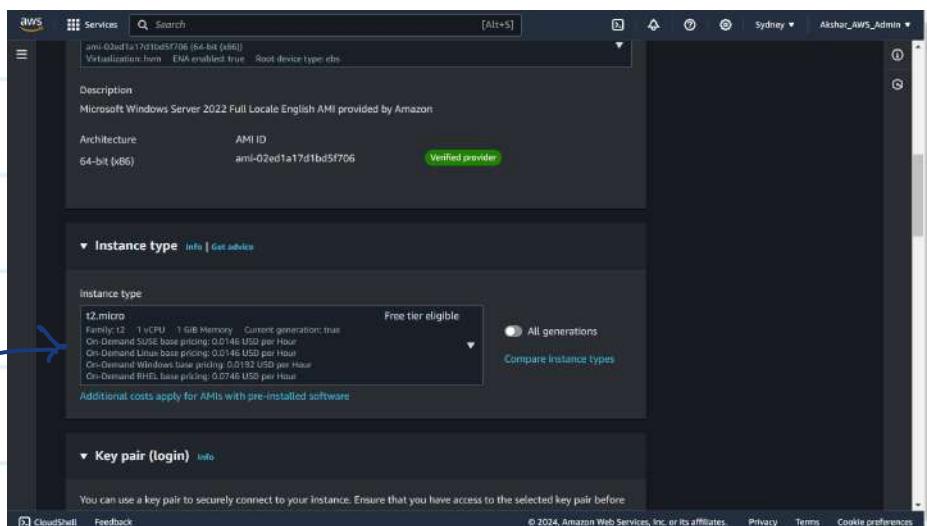
to EC2 Dashboard
launch instance

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.

Family: t2 - 1 vCPU - 1 GiB Memory Current generation: true
On-Demand SUSE base pricing: 0.0146 USD per Hour
On-Demand Linux base pricing: 0.0146 USD per Hour
On-Demand Windows base pricing: 0.0192 USD per Hour
On-Demand RHEL base pricing: 0.0746 USD per Hour

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](#)

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)

Edit

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Setting Credentia to login to your instance or virtual machine

Family: t2 - 1 vCPU - 1 GiB Memory Current generation: true
On-Demand SUSE base pricing: 0.0146 USD per Hour
On-Demand Linux base pricing: 0.0146 USD per Hour
On-Demand Windows base pricing: 0.0192 USD per Hour
On-Demand RHEL base pricing: 0.0746 USD per Hour

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

MyFirstSampleServerKey

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 [Create key pair](#)

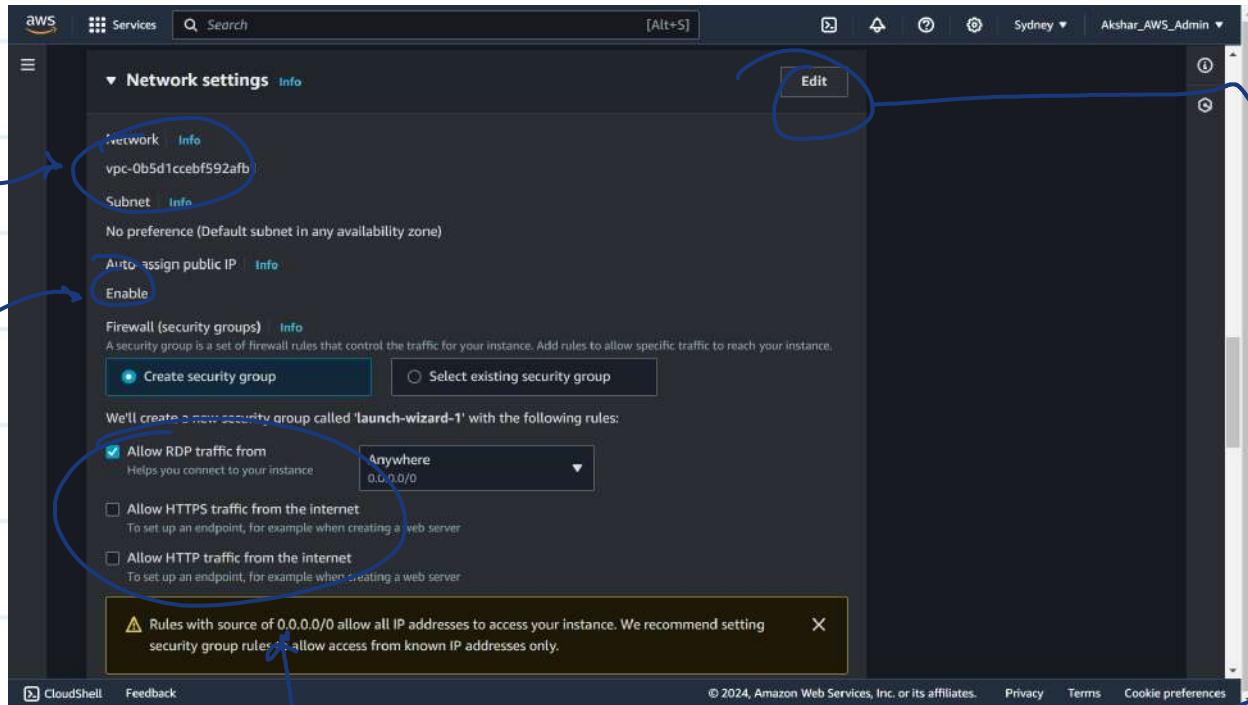
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Machine is created in sydney
how will we access it from SSH or the other one

Key pair stored as File on
our admin local pc

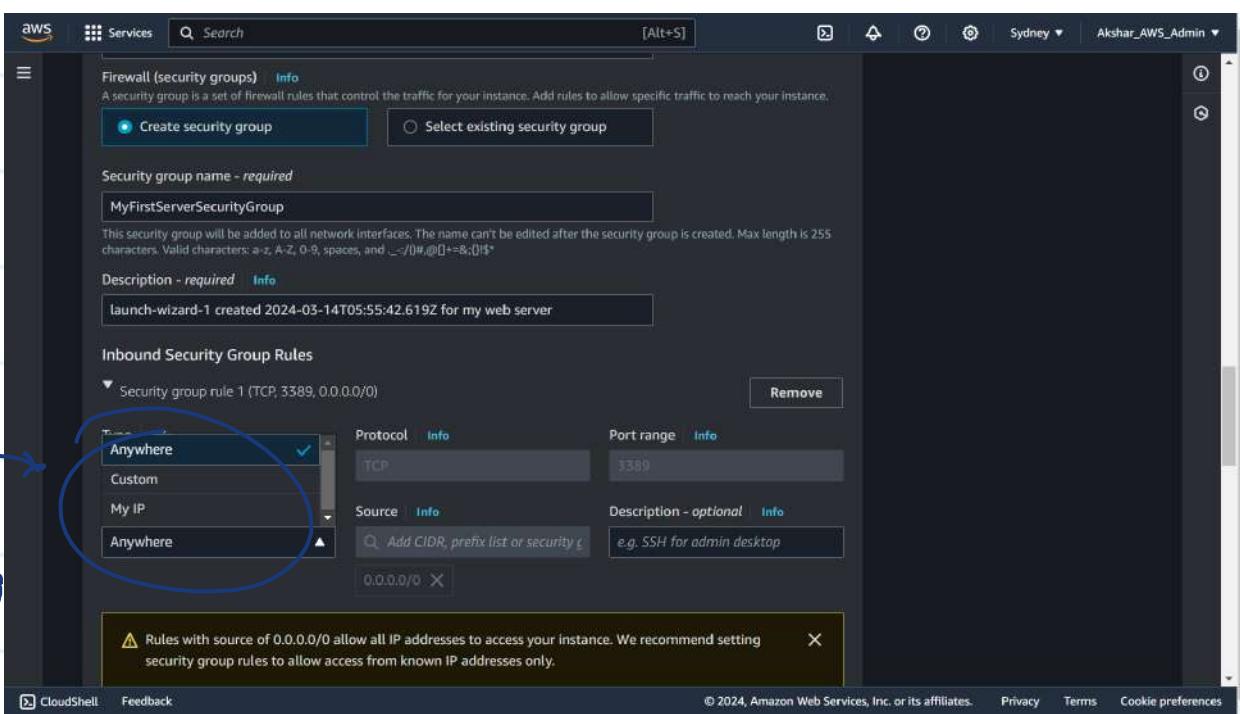
Instance of AWS virtual Private Cloud (VPC) that our instance will start into

Auto assign IP through our machines public IP

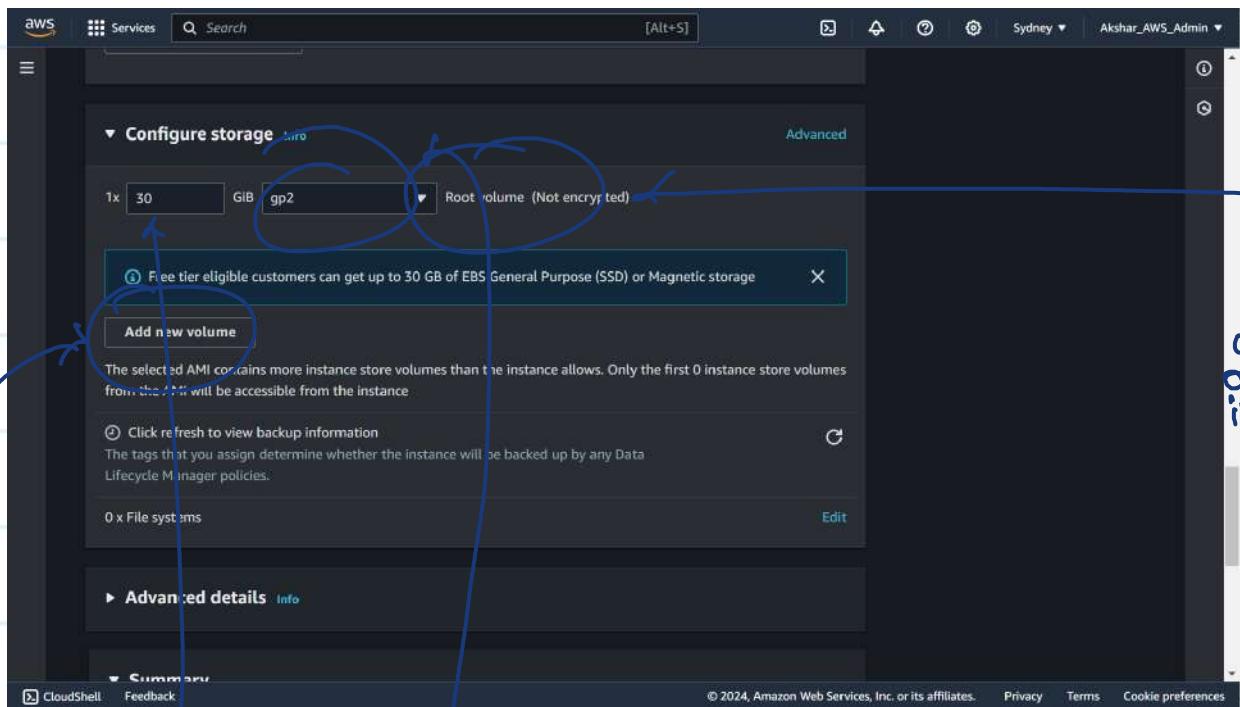


Press this before doing anything

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



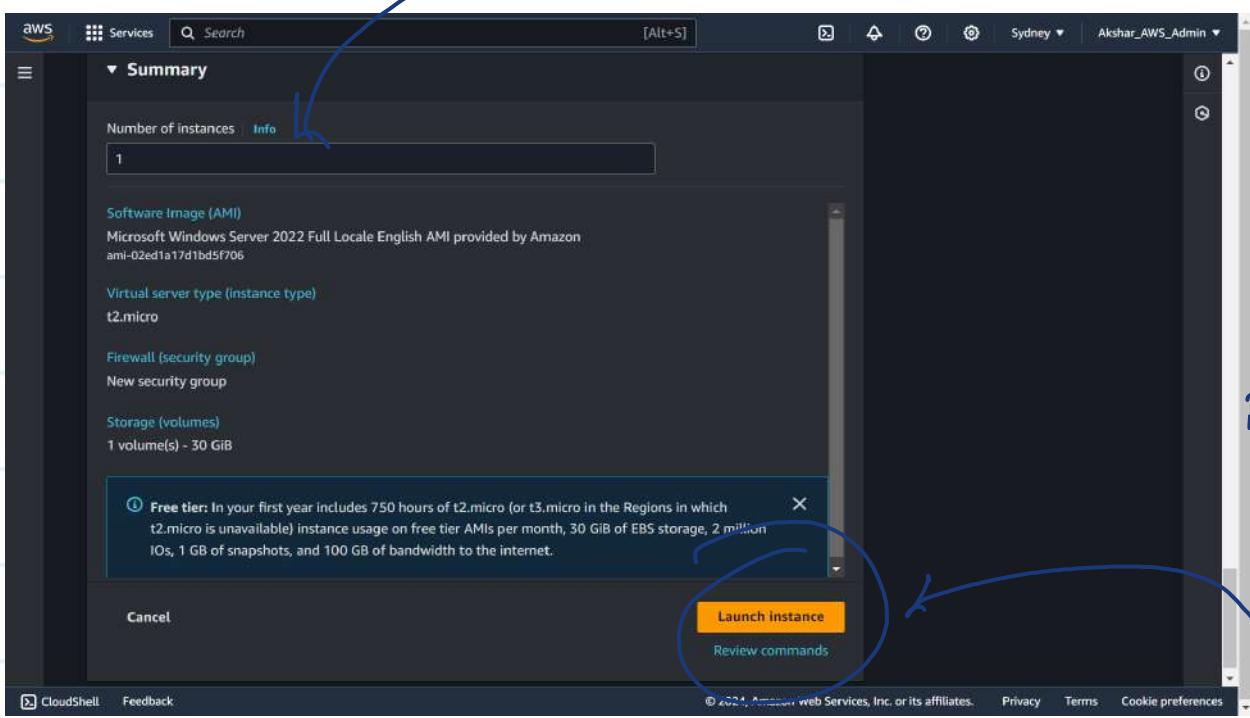
IP setting for our instance



First
is root
volume
where
OS
installed.
Other
are
EBS
volume

Capacity
type of SSD

you can launch more than 1 such instances



finally
you will
get the
summary
of
instance getting
created

After
review

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

▶ Launch log

Next Steps

Q 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. 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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you will see this

in instances

EC2 Dashboard

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. On the left, there's a navigation sidebar with options like EC2 Dashboard, EC2 Global View, Events, Instances (with Instances selected), 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 shows a table with one row for an instance. The columns include Alarm status, Availability Zone (which has a blue circle around it), Public IPv4 DNS, Public IPv4 IP, Elastic IP, and IPv6 IPs. The instance details are: ap-southeast-2c, ec2-3-27-43-38.ap-sout..., 3.27.43.38. At the bottom, there's a modal window titled "Select an instance" with a close button.

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

What I need,

IP address of that machine

Valid username and 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]

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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 serverimagefile

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	Username Info
ec2-3-27-43-38.ap-southeast-2.compute.amazonaws.com	<input type="text" value="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

getpassword.

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.

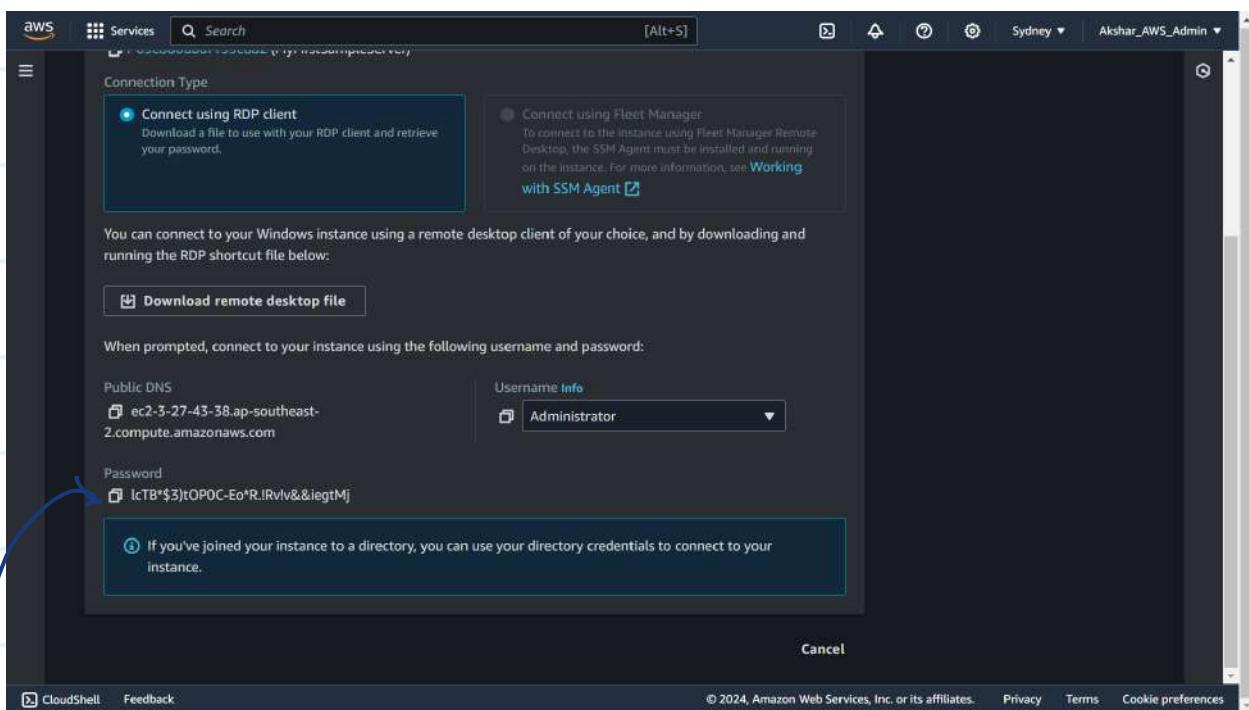
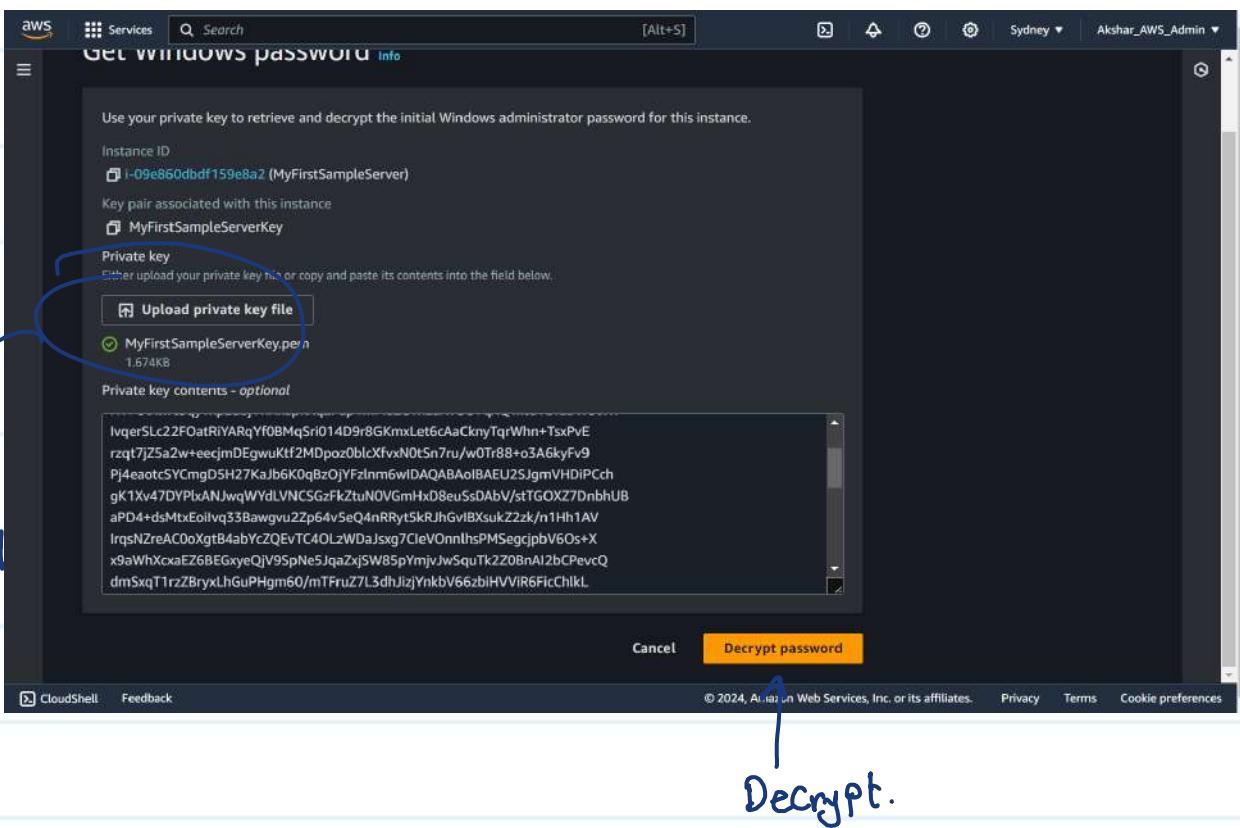
[Upload private key file](#)

Private key contents - optional

Private key contents

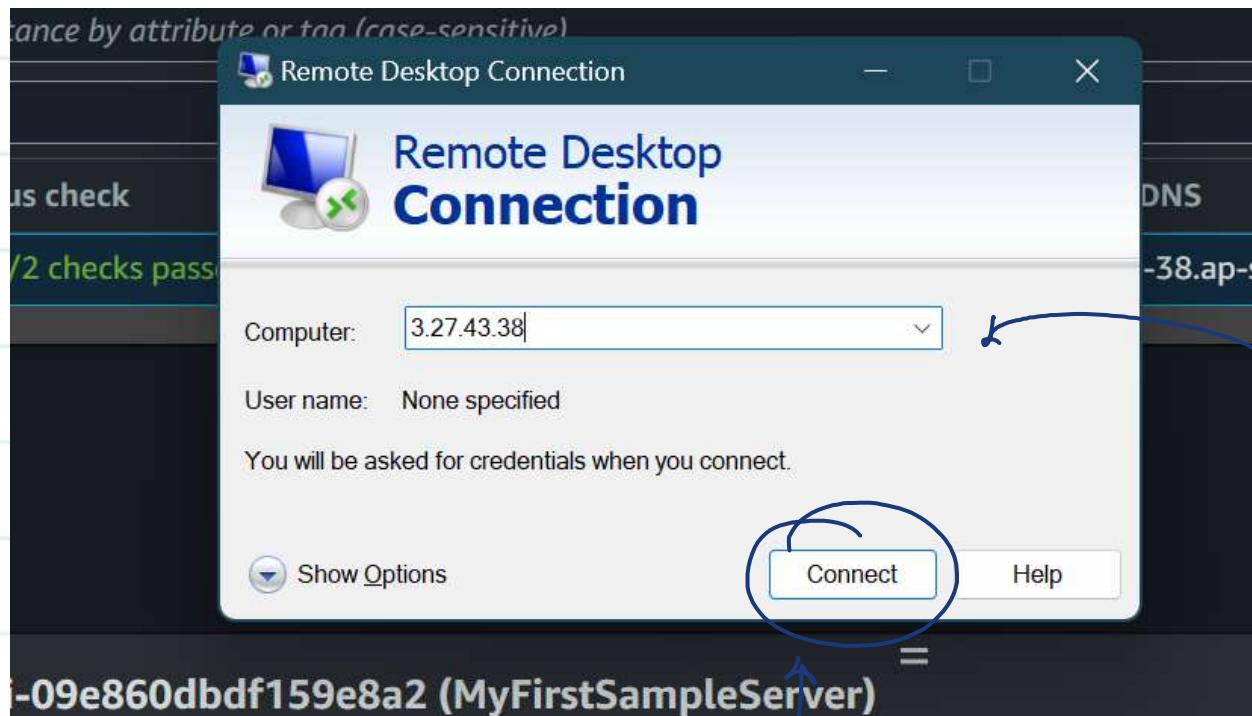
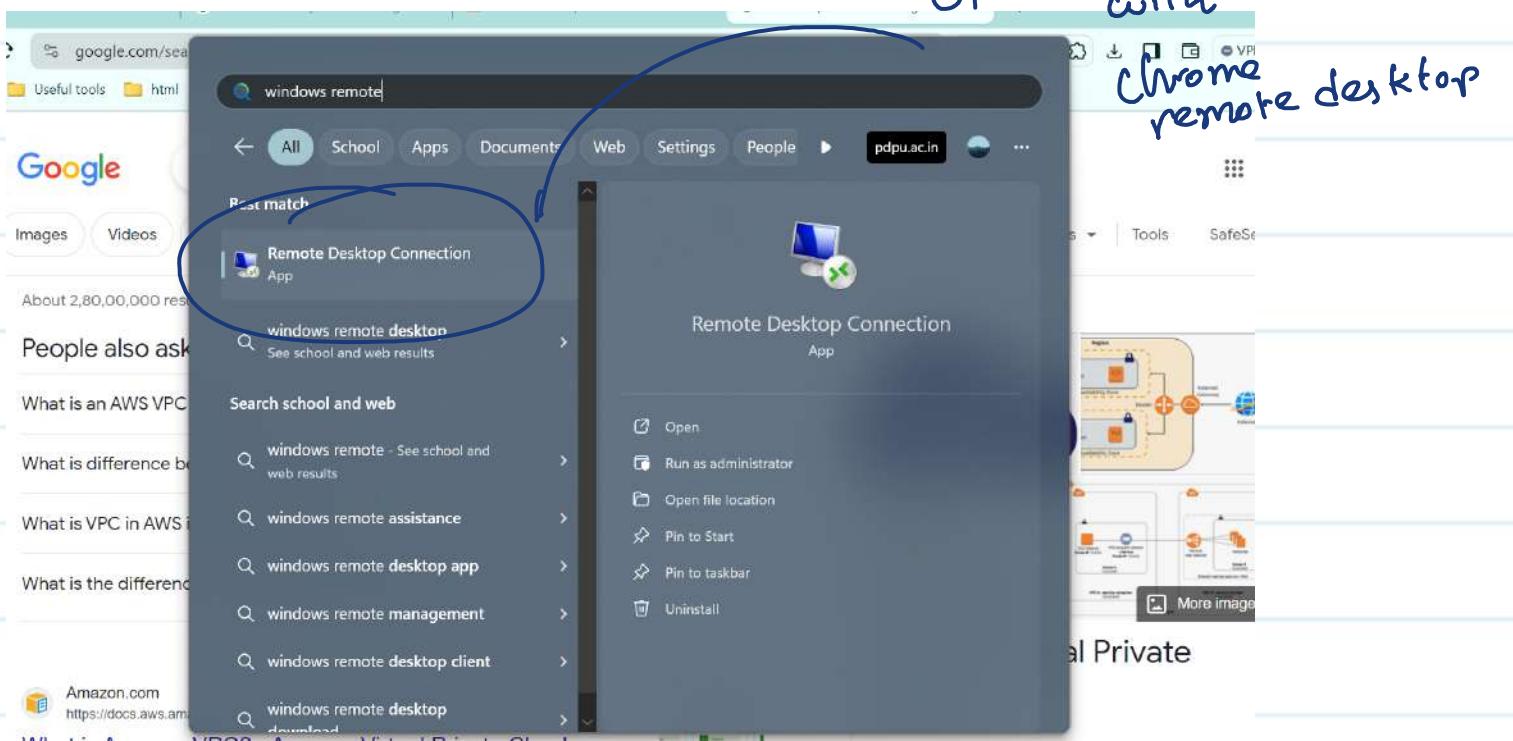
Cancel [Decrypt password](#)

Upload file we downloaded way before



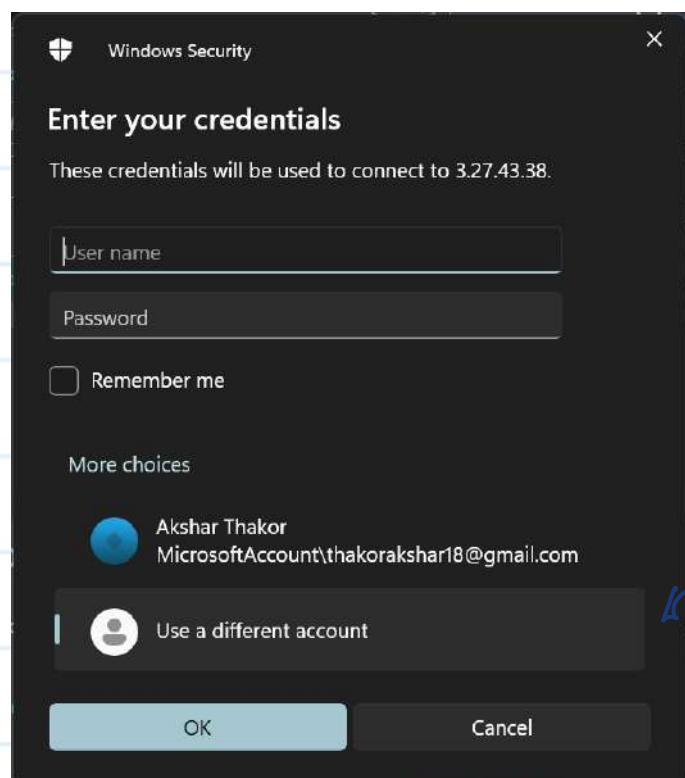
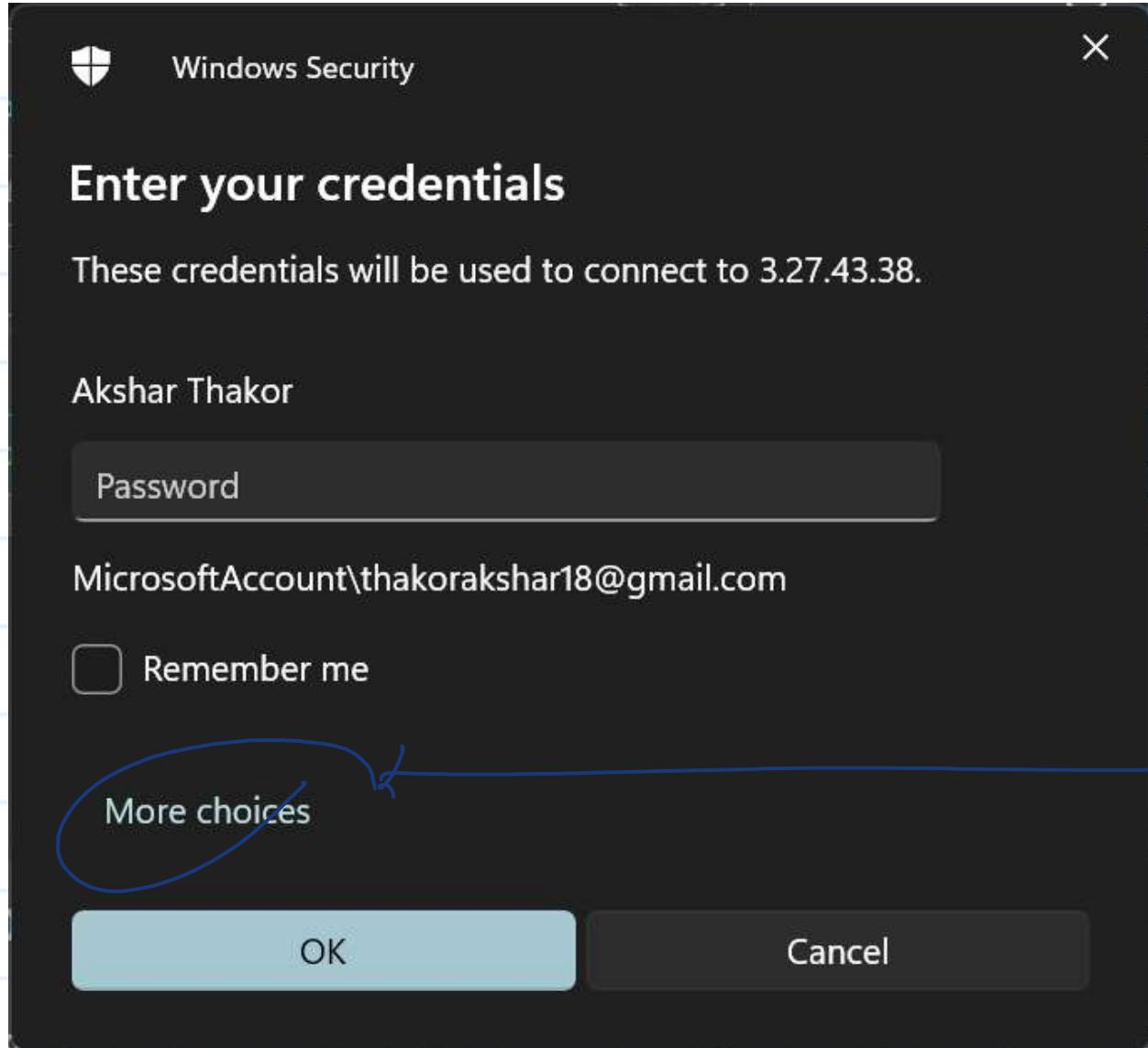
got password

Save username
and password in a notepad file



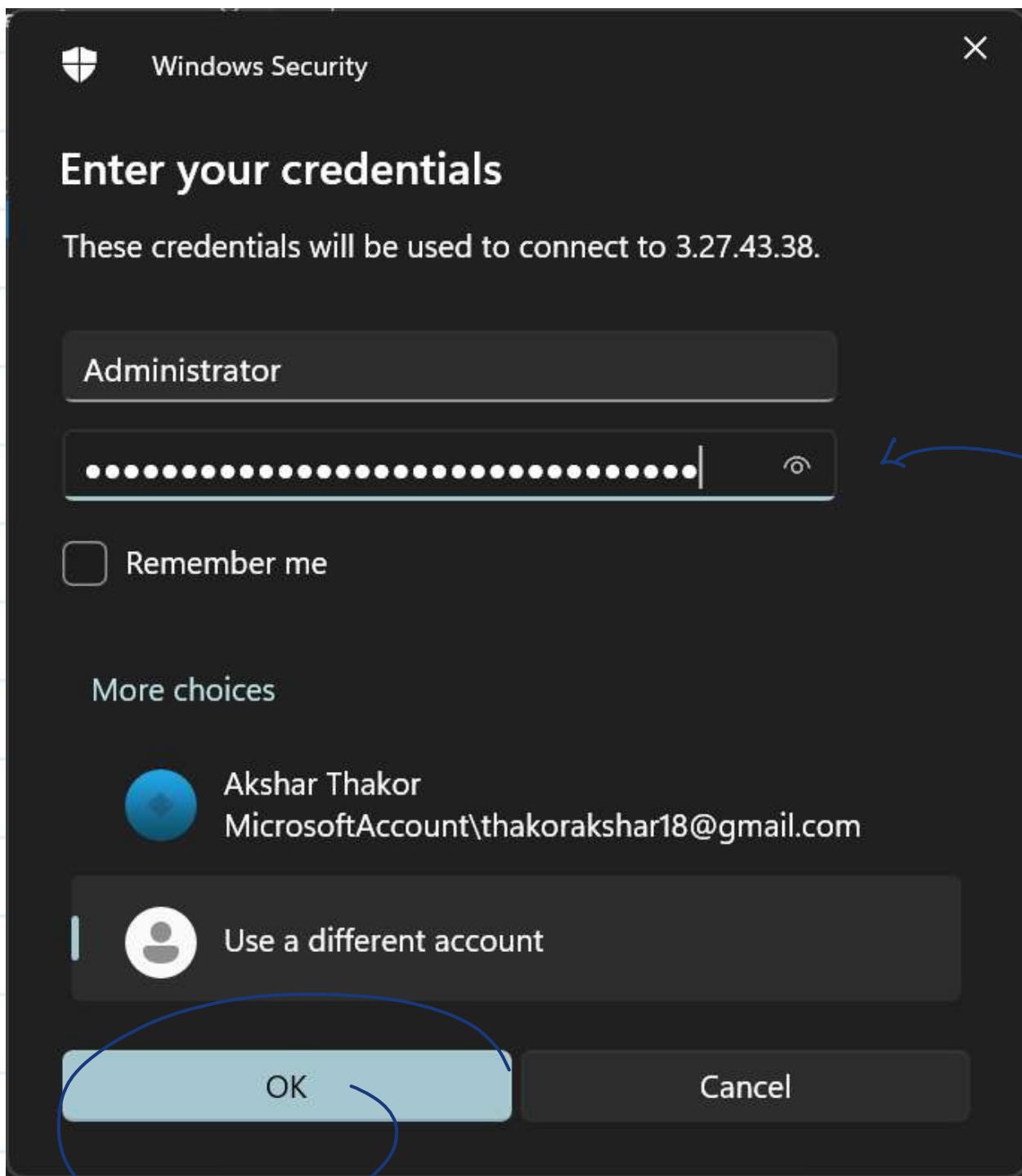
then
do
connect

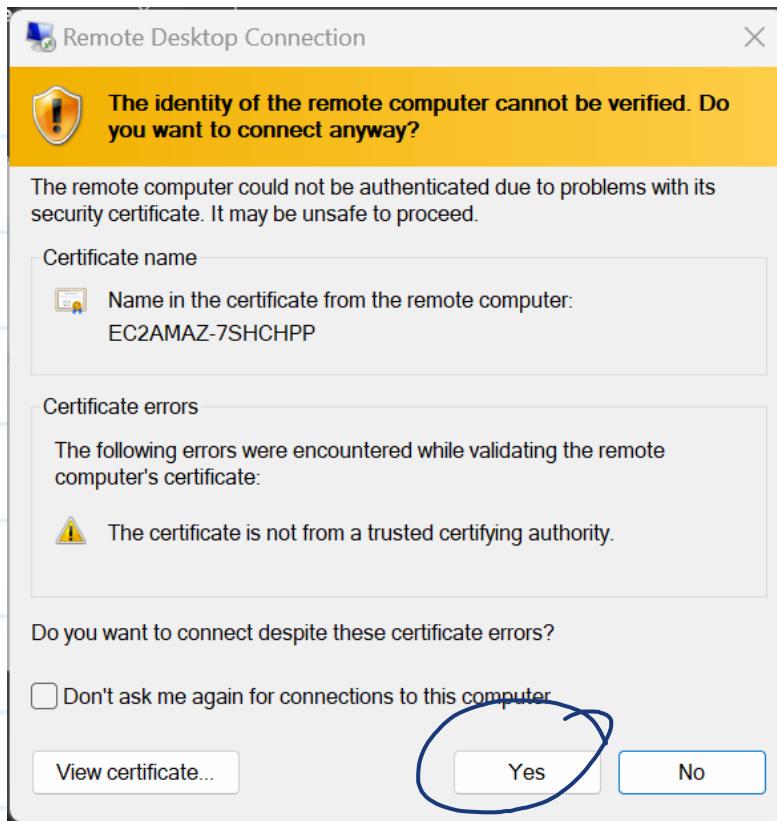
We can get IP address from EC2 portal and instances



Enter those details here

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





↳ This may appear

Do you want to connect despite these certificate errors?

Don't ask me again for connections to this computer

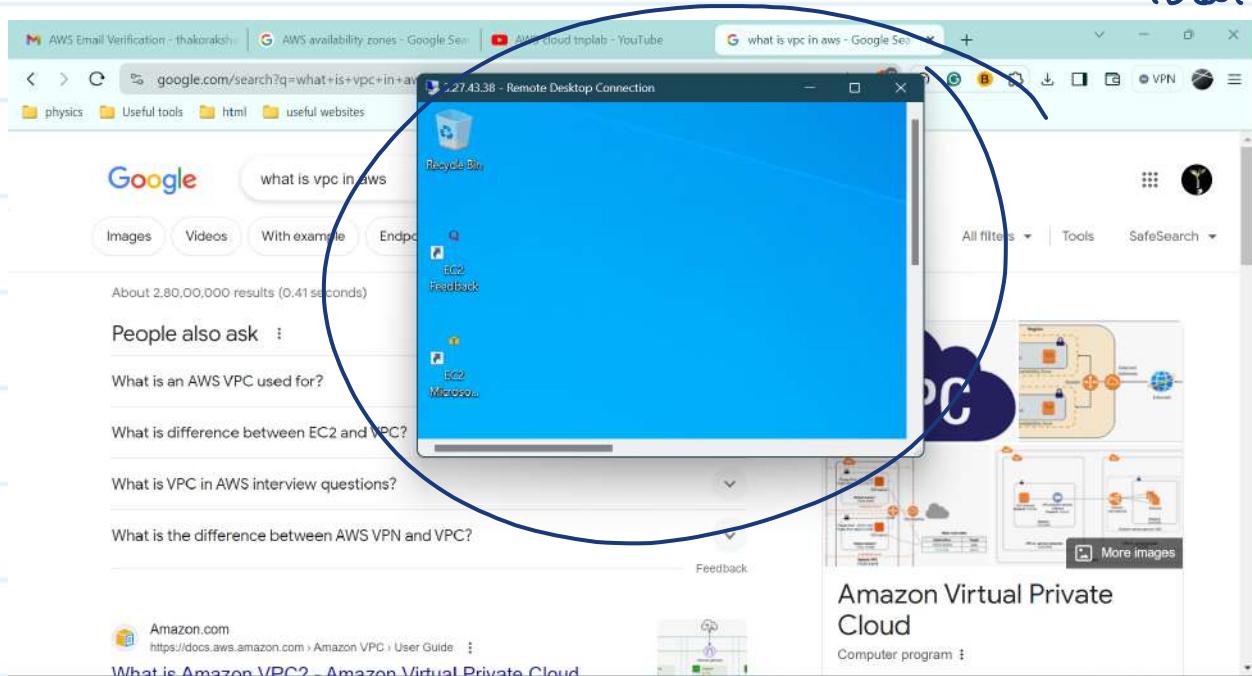
[View certificate...](#)

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

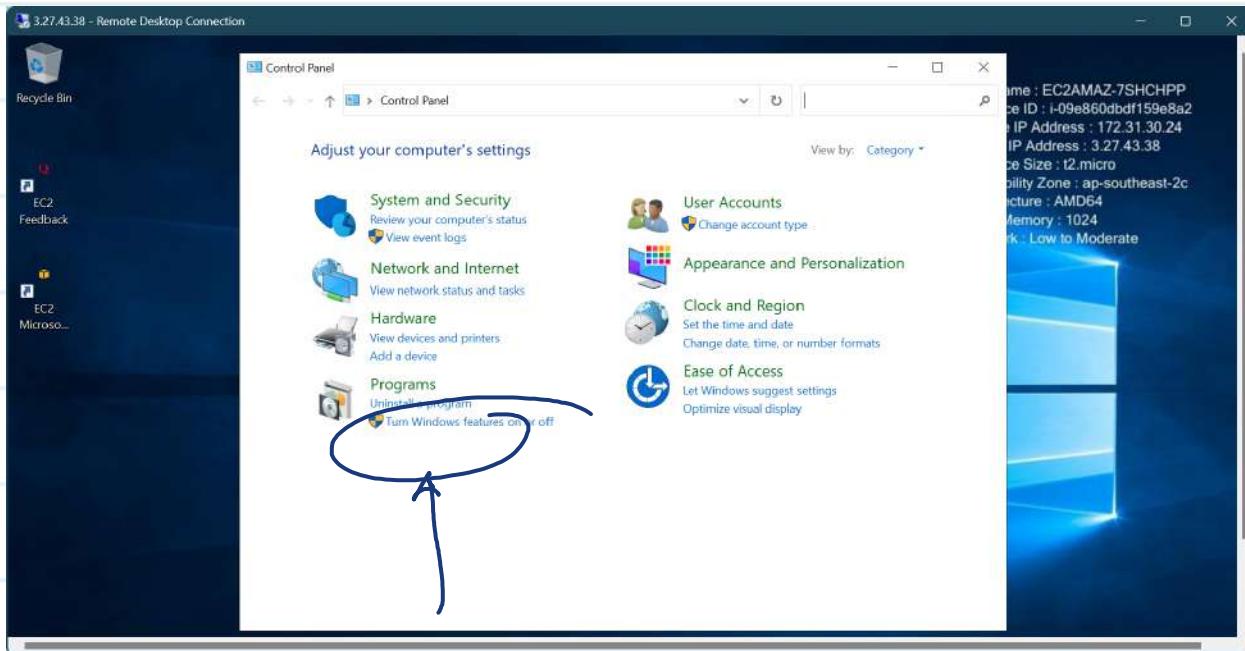
HTTP 80

HTTPS 443

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

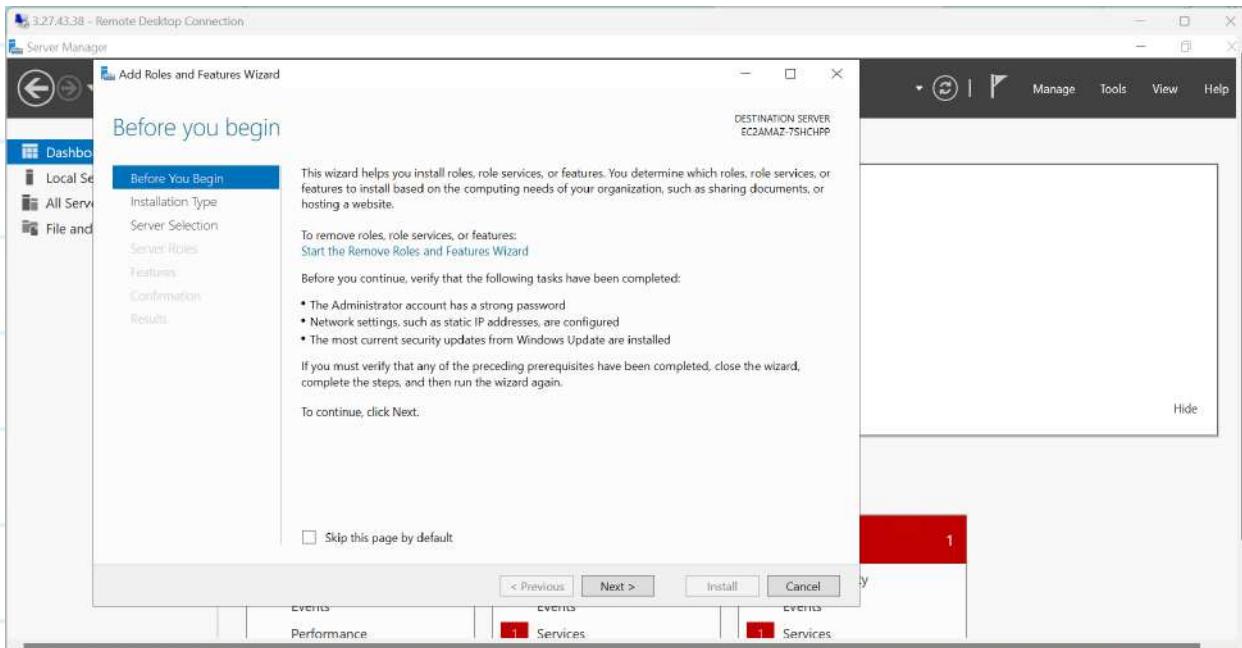
How to enable this service and create webserver

Now will operate inside instance
go to control panel

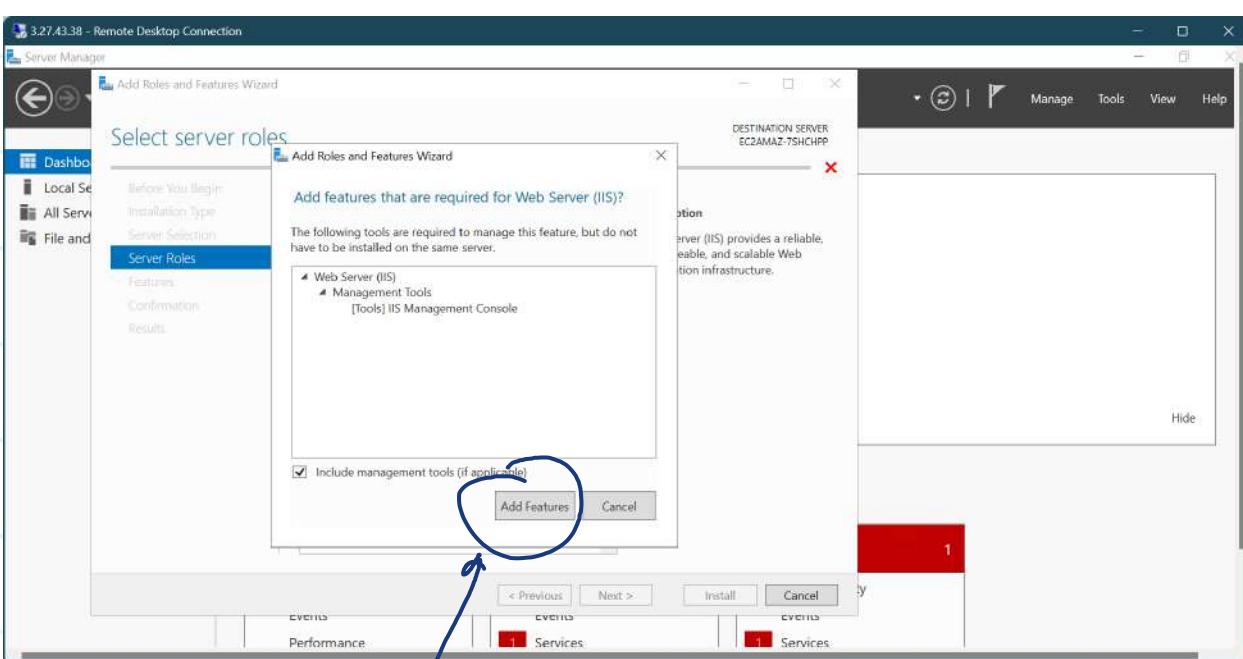
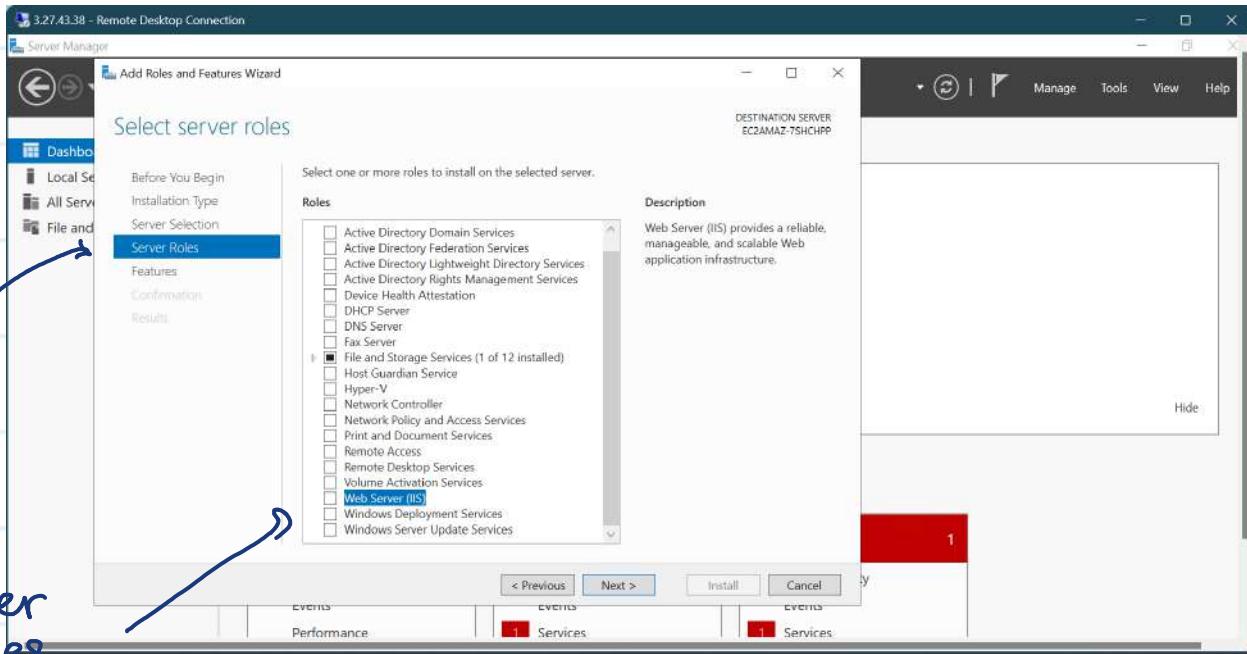


click this Turn windows feature...

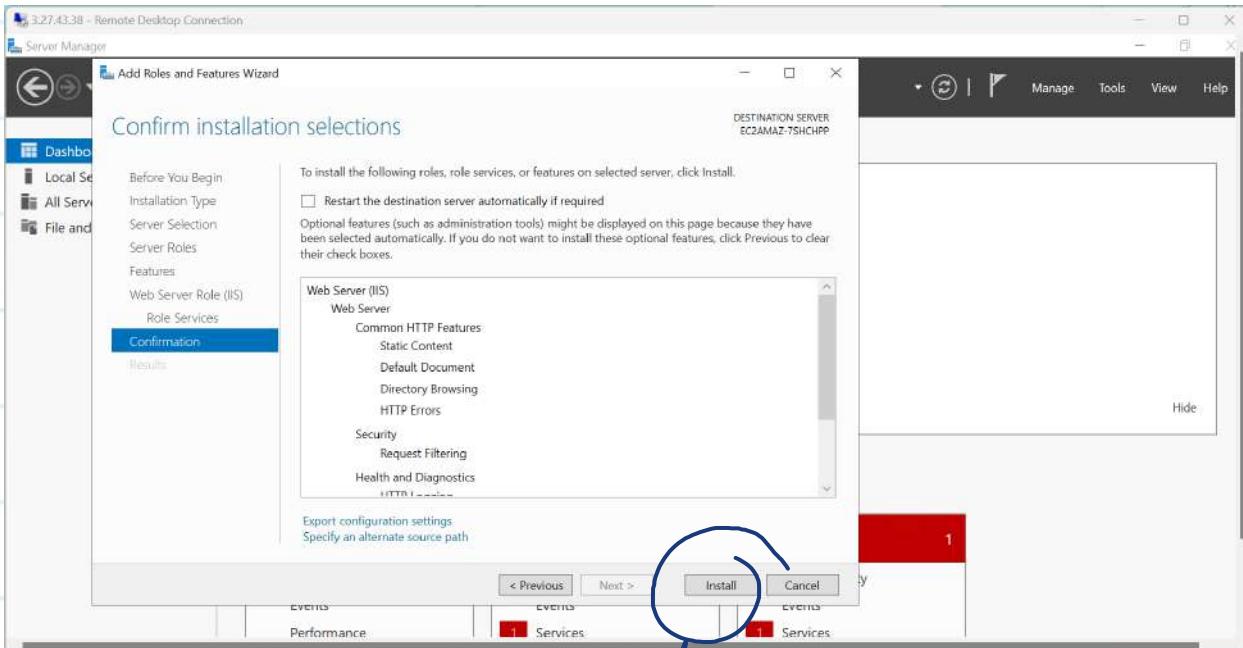
Wait for sometime for following to appear



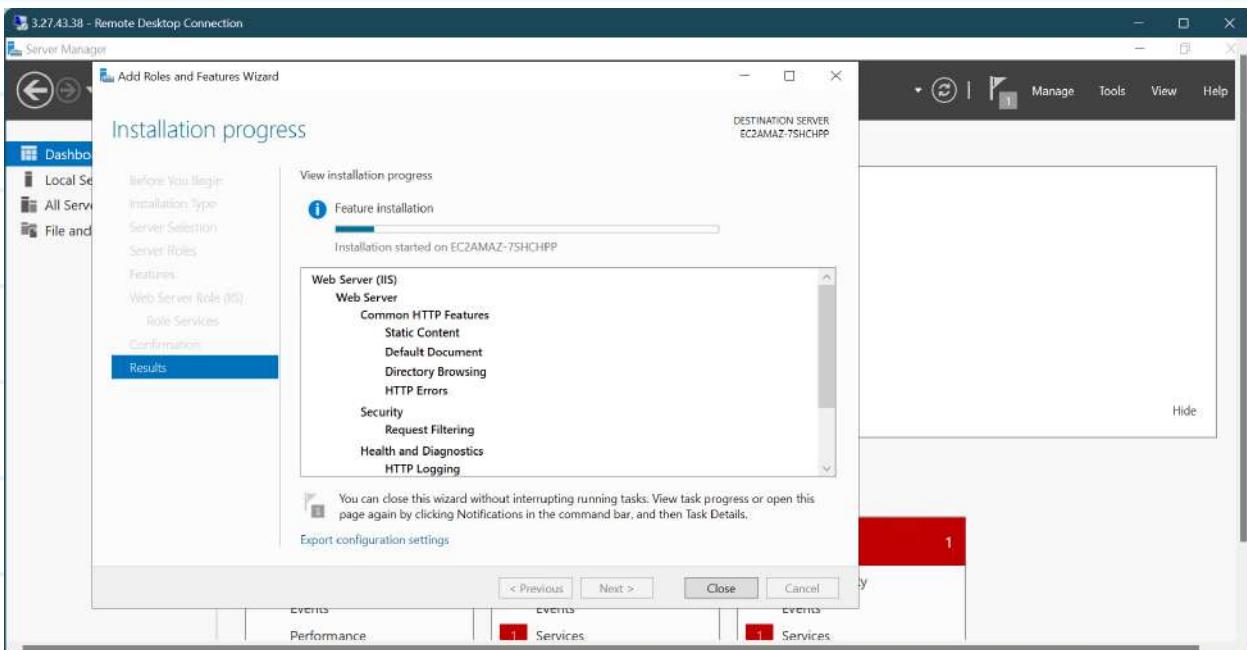
Do next → next → next till



then again do next → next → next
till
Following appears

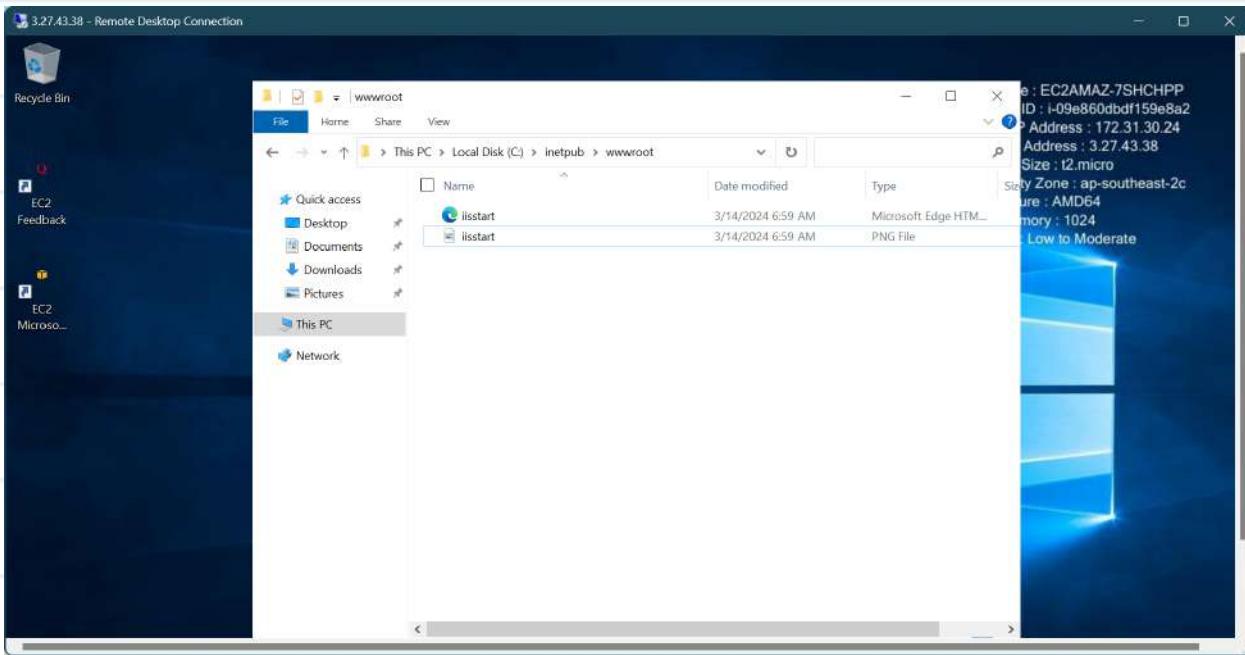


Install



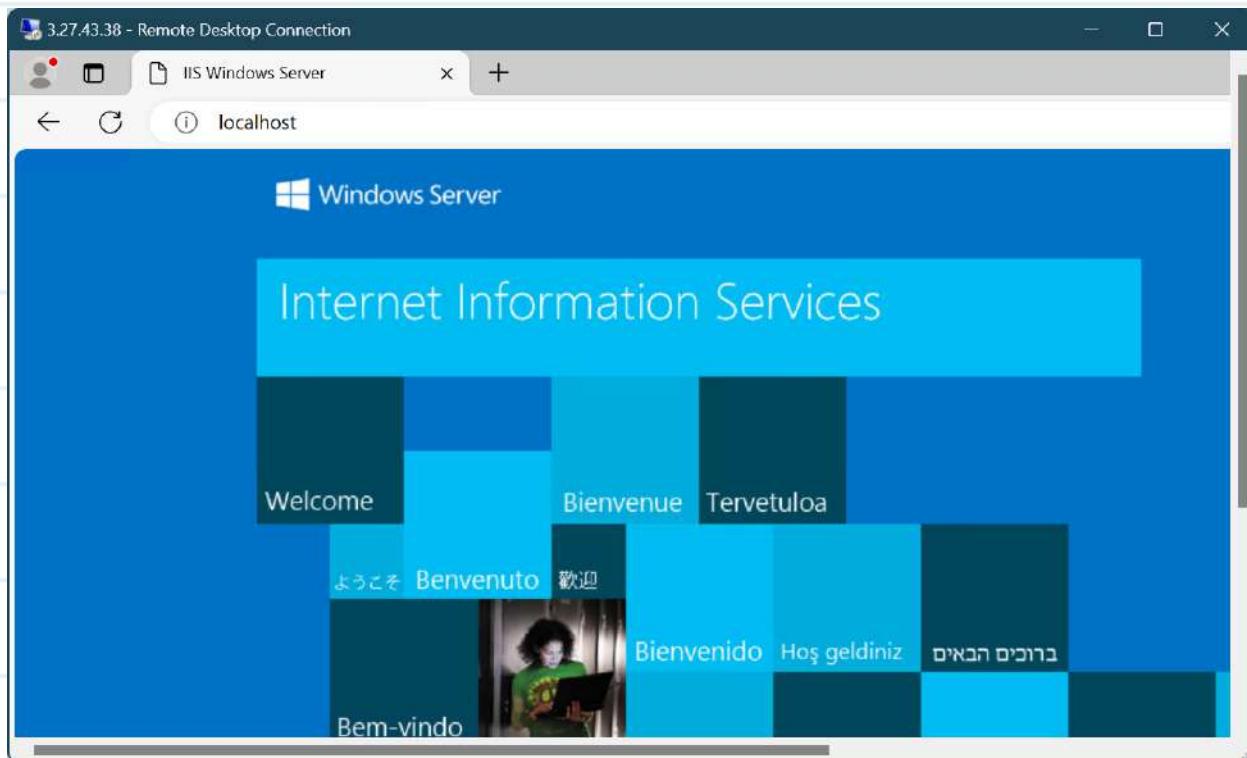
After installation close all windows
and goto filemanager

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



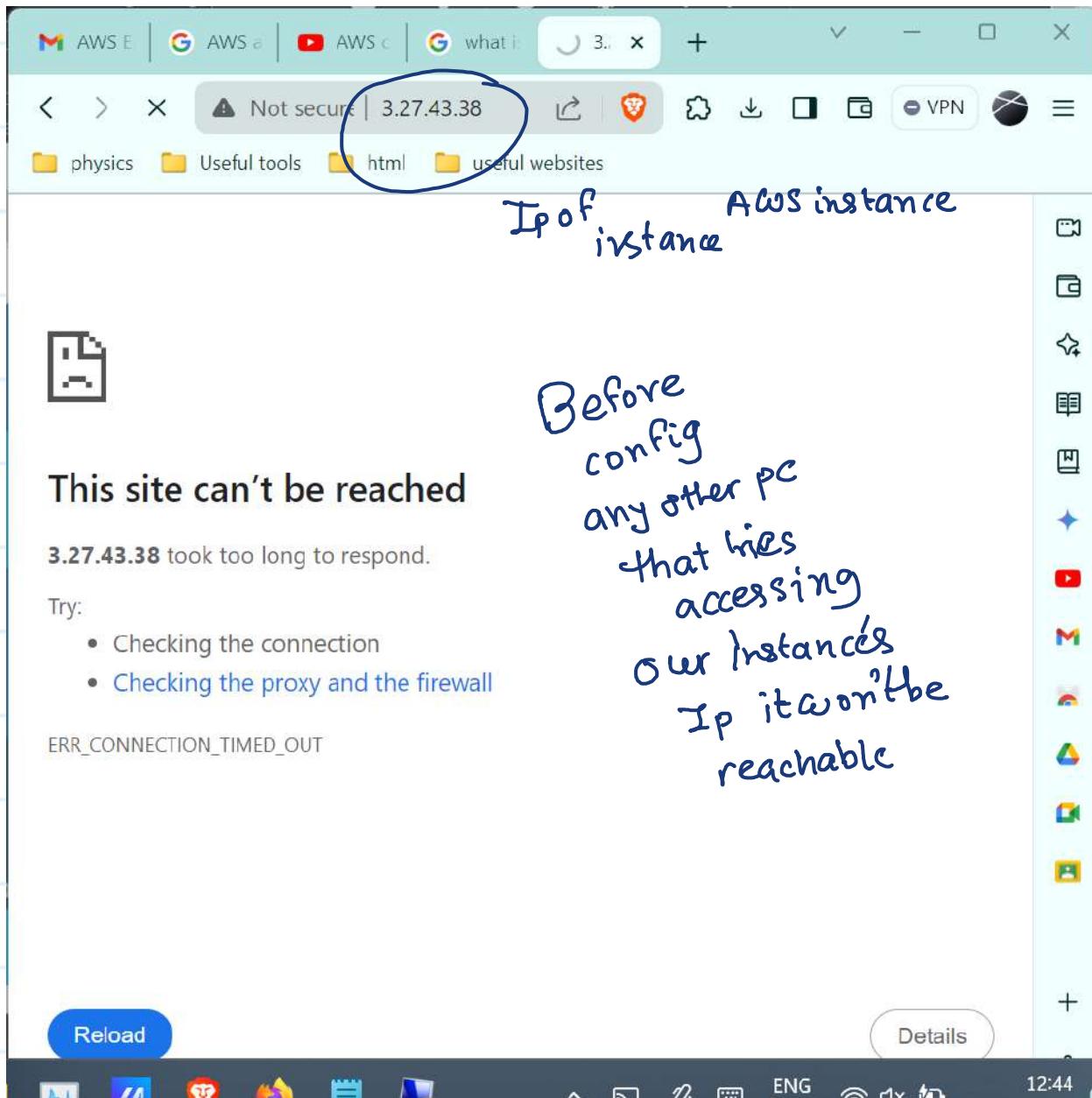
Now we can access this server locally (^{inside}
instance)
But to access this server from any pc even
our adminpc that we are connected to instance
through,
we need to do some config

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 instance through our own PC (PC through which we have remote access to the instances)

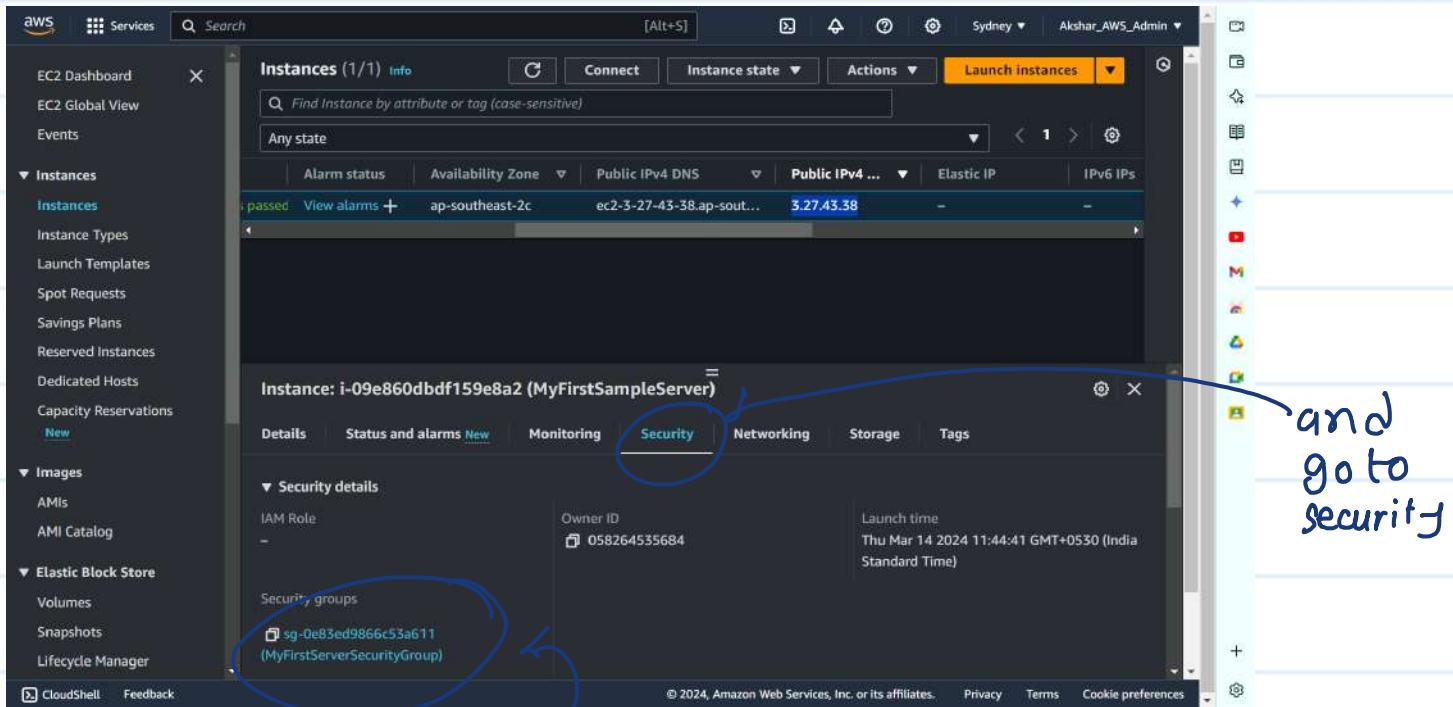


↑
this is screen of
our own pc

→ 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
Owner: 058264535684	Inbound rules count: 1 Permission entry	Outbound rules count: 1 Permission entry

Inbound rules (1)

Protocol	Port range	Source	Description
TCP	3389	0.0.0.0/0	-

Edit
inbound
rules

Inbound Rules (for incoming traffic requests)

Edit inbound rules

Inbound rules

Security group rule ID: sgr-007e8e59758757d02	Type: RDP	Protocol: TCP	Port range: 3389	Source: 0.0.0.0/0	Description - optional:
---	-----------	---------------	------------------	-------------------	-------------------------

Add rule

Warning: 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

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

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-007e8e59758757d02	RDP	TCP	3389	Cu... ▾	0.0.0.0/0 X
-	HTTP	TCP	80	A... ▾	0.0.0.0/0 X

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.

Edit inbound rules

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

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-007e8e59758757d02	RDP	TCP	3389	Cu... ▾	0.0.0.0/0 X
-	HTTP	TCP	80	A... ▾	0.0.0.0/0 X

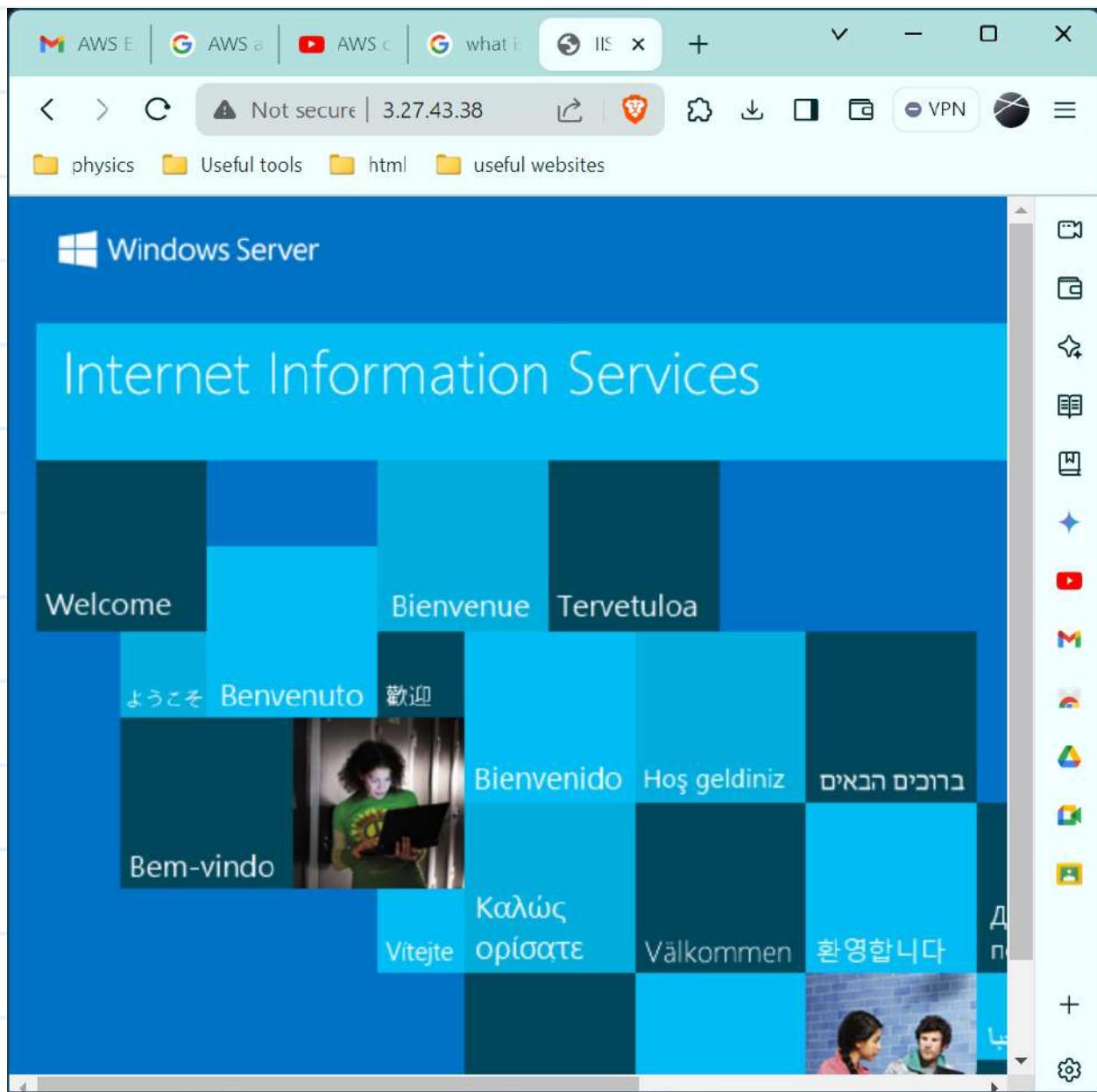
Cancel

Preview changes

Save rules

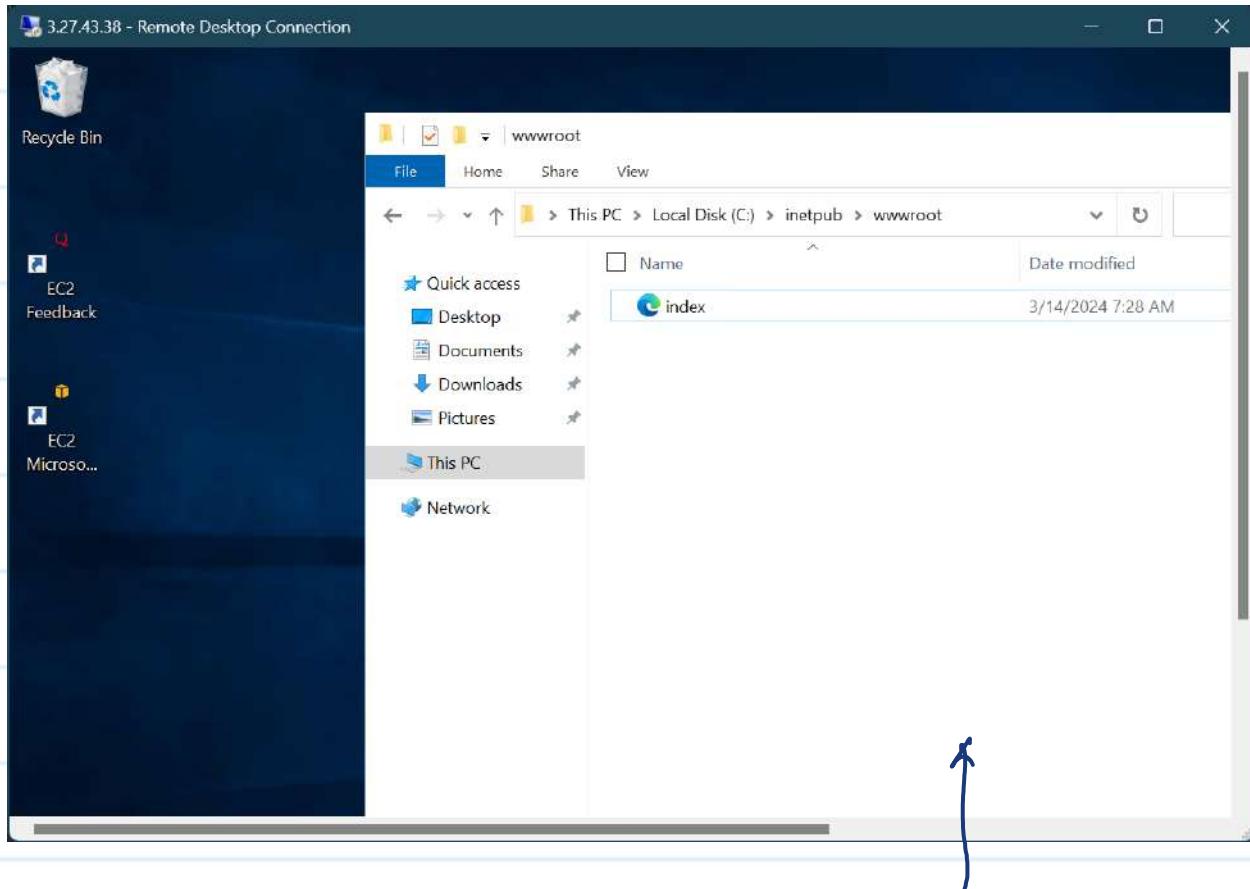
Save rules

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



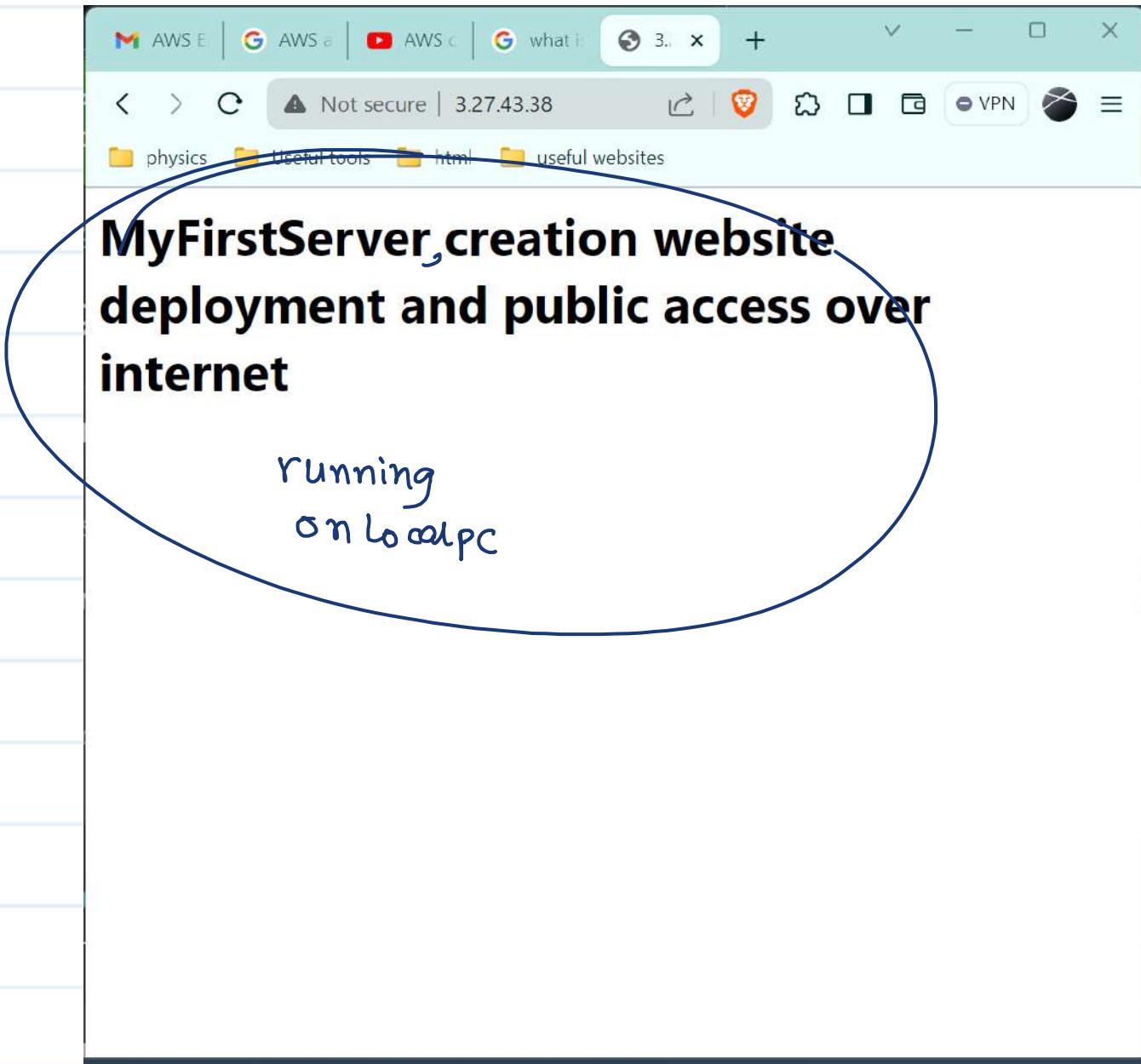
↑
Now your remote pc's instances's server accessible through any PC.

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, which is open and shows several options: Stop instance, Start instance, Reboot instance, Hibernate instance, and Terminate instance. The "Terminate instance" option is highlighted with a blue box. Handwritten notes on the right side of the screen provide instructions: "select the instance goes to instance state" points to the top instance's state, and "terminate instance" points to the highlighted option in the Actions menu.

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

Instance: i-09e860dbdf159e8a2 (MyFirstSampleServer)

Details Status and alarms New Monitoring Security Networking Storage Tags

Security details

IAM Role: - Owner ID: 058264535684 Launch time: Thu Mar 14 2024 11:44:11 GMT+0530 (India Standard Time)

Security groups: sg-0e83ed9866c53a611 (MyFirstServerSecurityGroup)

Actions

- Stop instance
- Start instance
- Reboot instance
- Hibernate instance
- Terminate instance

Instance: i-09e860dbdf159e8a2 (MyFirstSampleServer)

Details Status and alarms New Monitoring Security Networking Storage Tags

Security details

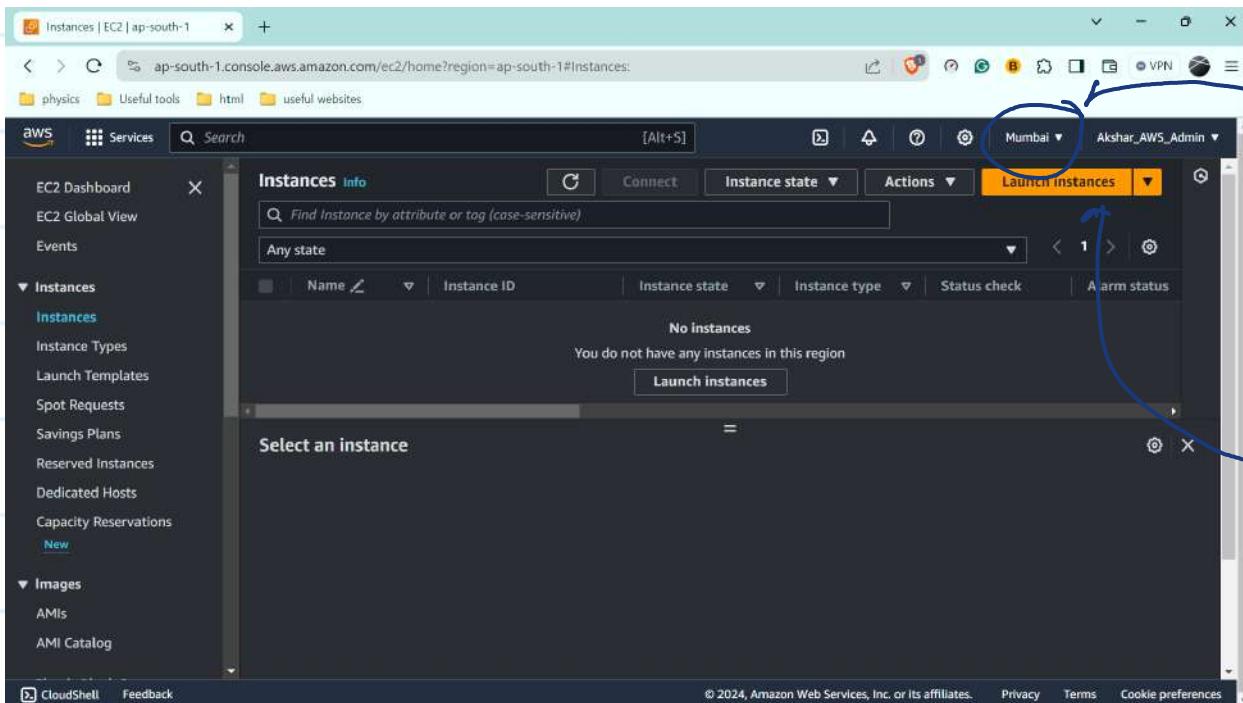
IAM Role: - Owner ID: 058264535684 Launch time: Thu Mar 14 2024 11:44:41 GMT+0530 (India Standard Time)

Security groups: sg-0e83ed9866c53a611 (MyFirstServerSecurityGroup)

The screenshot shows the AWS EC2 Instances page. On the left, a sidebar lists various EC2-related services: EC2 Dashboard, EC2 Global View, Events, Instances (selected), 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 pane 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), Instance type (t2.micro), Status check (green), and Alarm status (View alarms). A blue circle highlights the "Terminated" state. A handwritten note "Terminated" with an arrow points to this circle. The bottom of the page includes standard AWS footer links: CloudShell, Feedback, © 2024, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

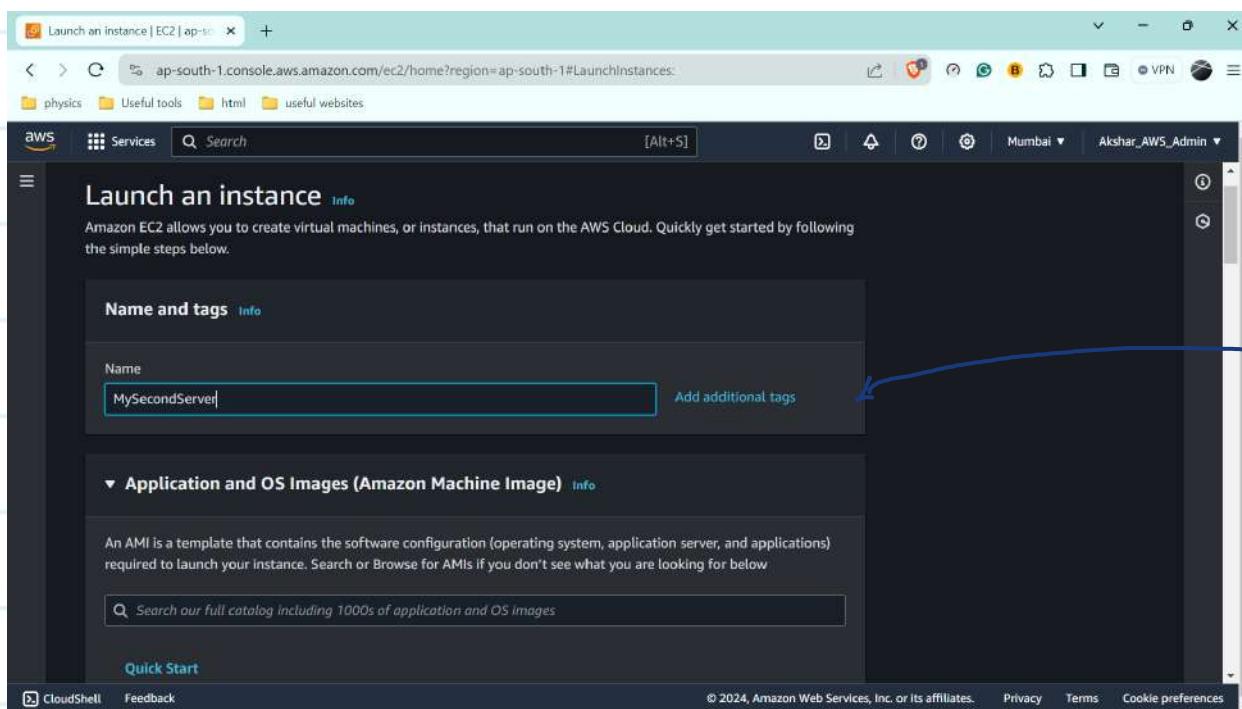
Afternoon session

EC2 instance with ubuntu Linux OS



This time we'll select mumbai

Then do launch instances



Name your instance

Select OS

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-041e007a1d2fa24dd (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

CloudShell Feedback

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

Additional costs apply for AMIs with pre-installed software

Key pair (login)

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.

CloudShell Feedback

t2.micro
Family: t2 1 vCPU 1 GiB Memory Current generation: true Free tier eligible
All generations Compare instance types

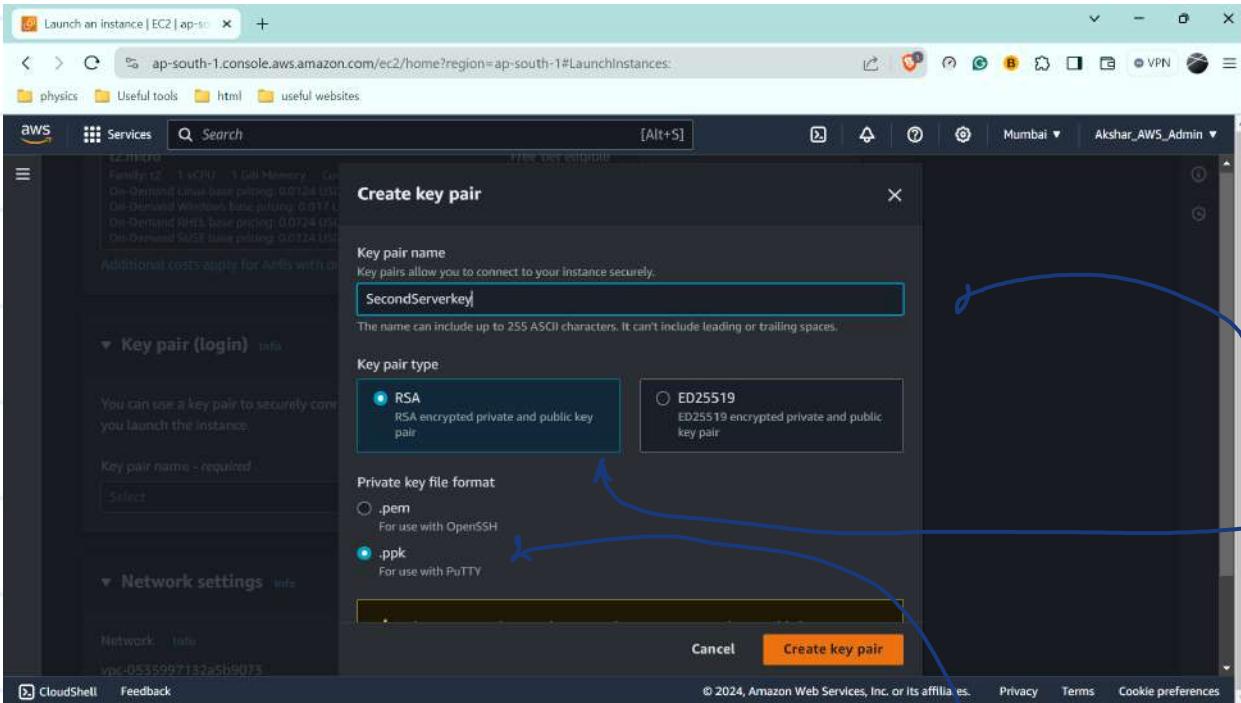
Key pair name - required
Select Create new key pair

Network settings Edit

Network info
vpc-0535997152a5b9073

CloudShell Feedback

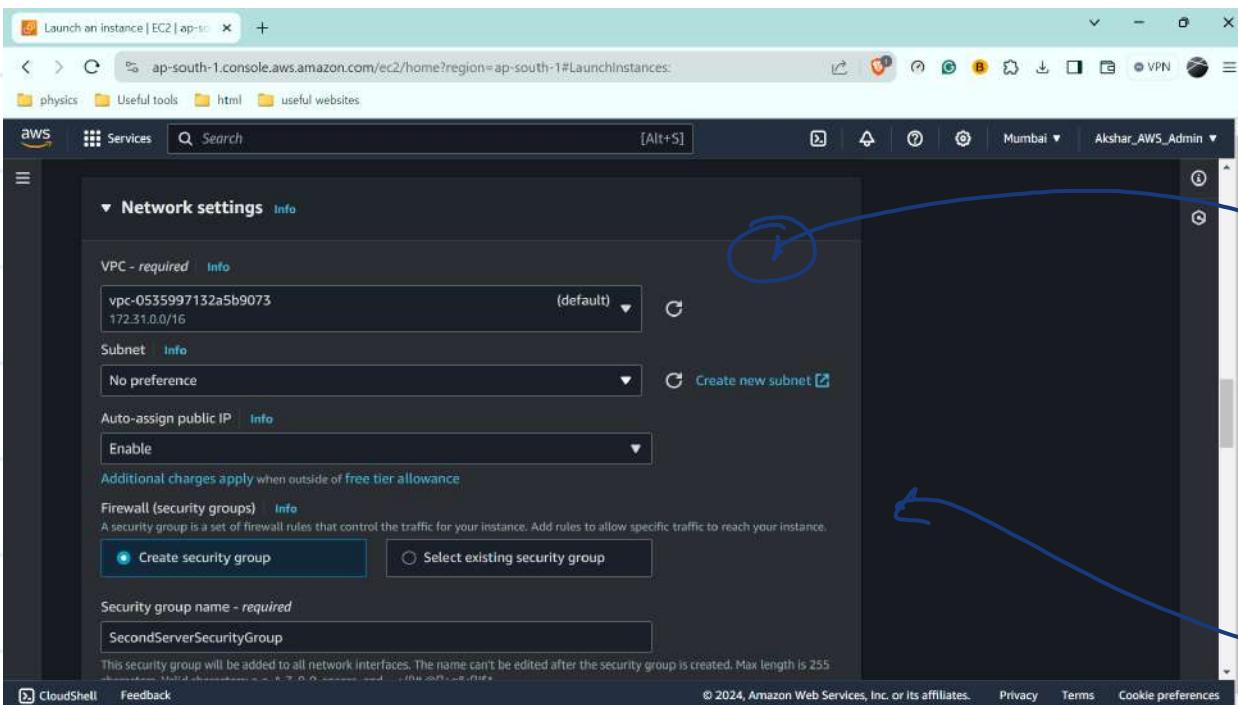
Create new key pair



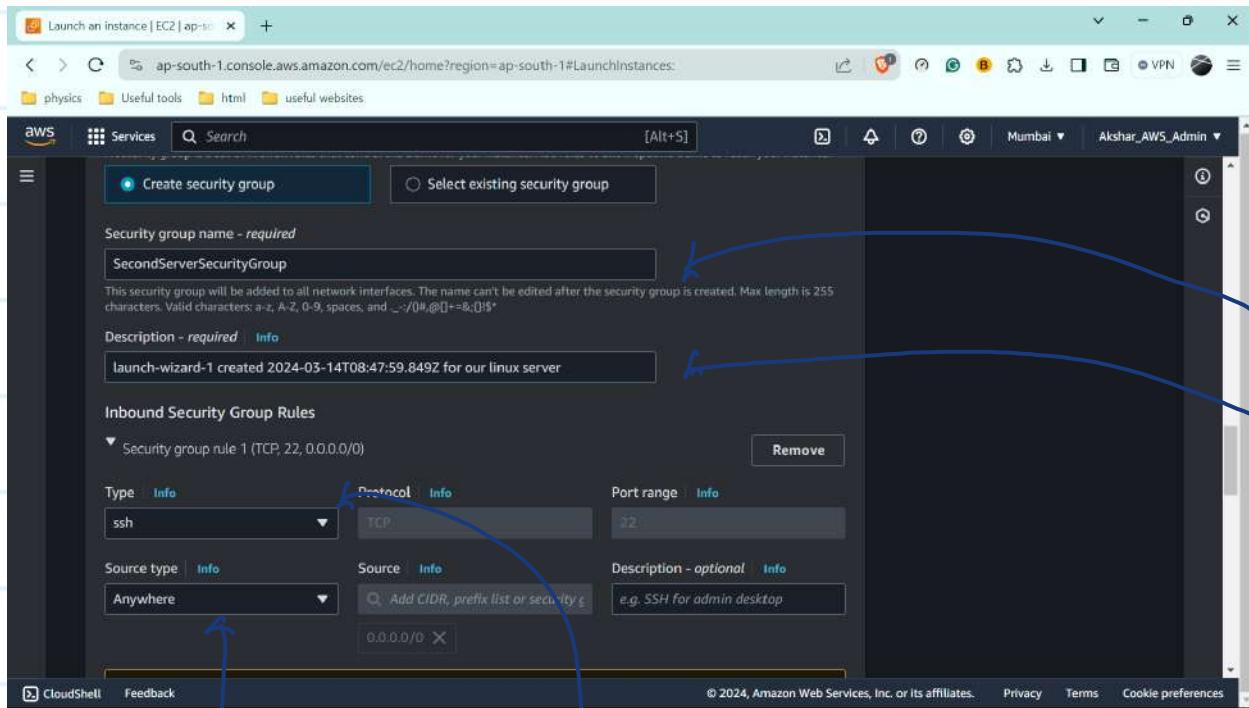
key pair name

encryption Algo

select ppk
this time
and do
create



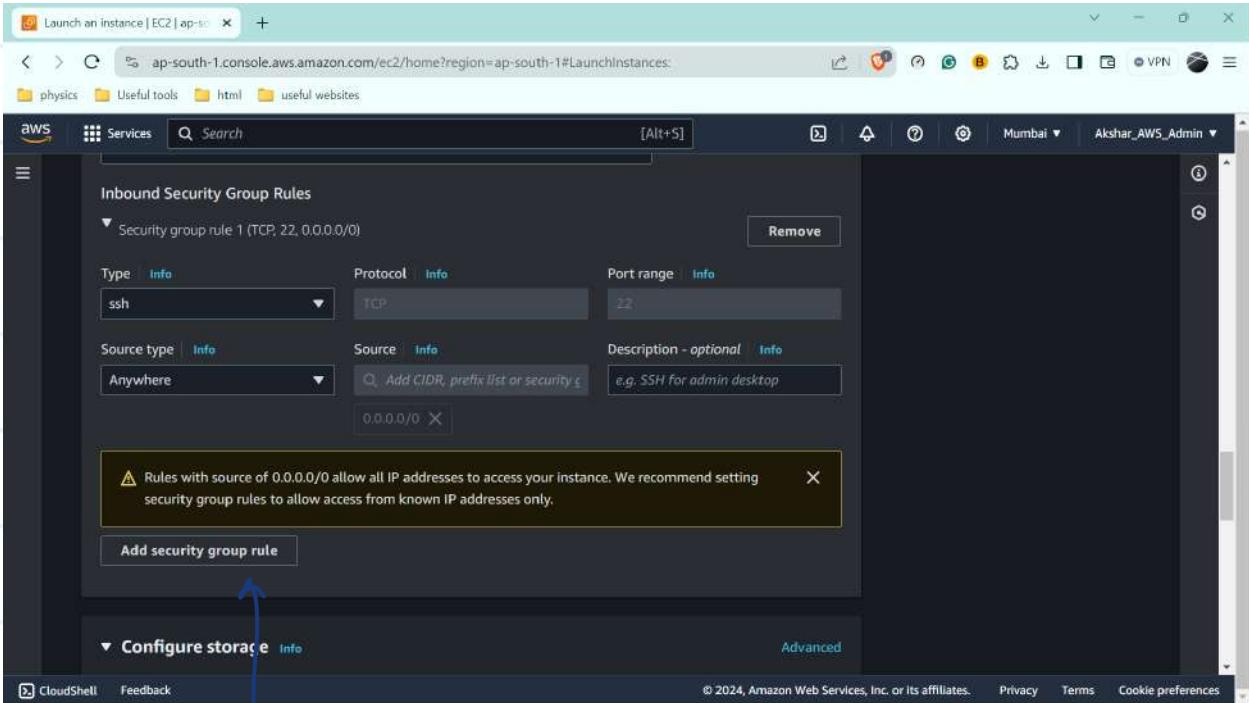
There
will be
edit
button
here
and
press that
to get



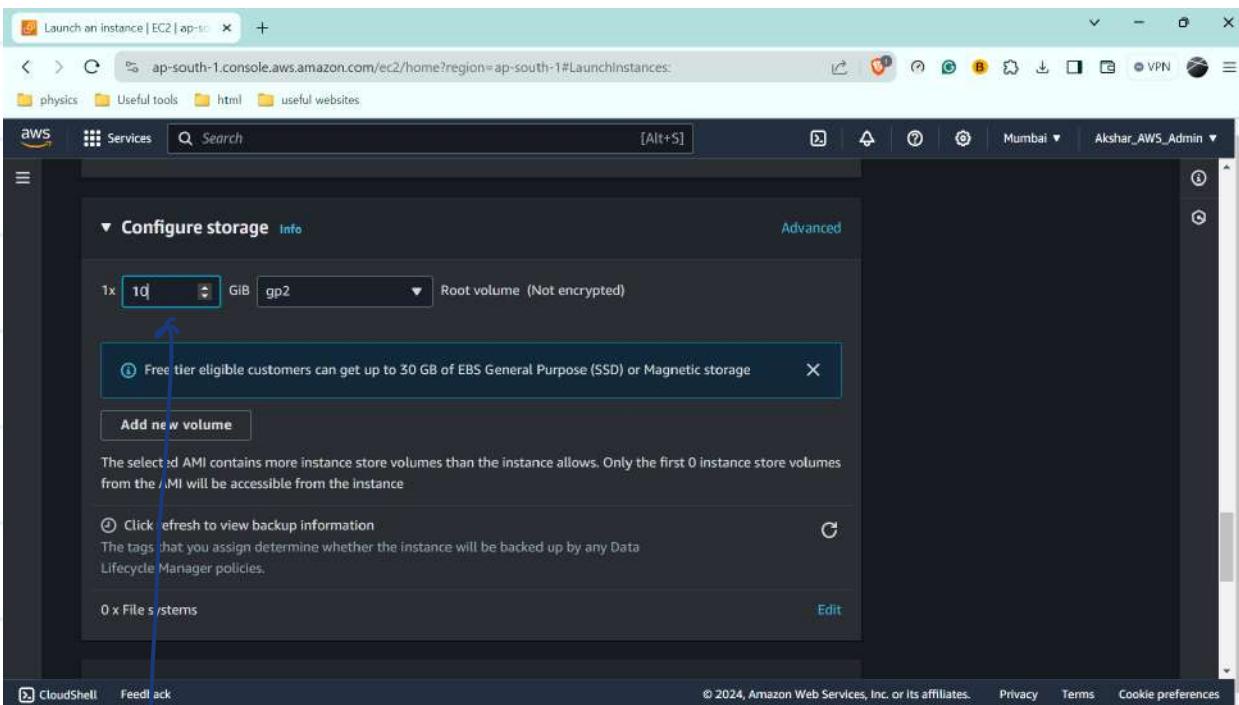
Name it
Description

anywhere

select ssh

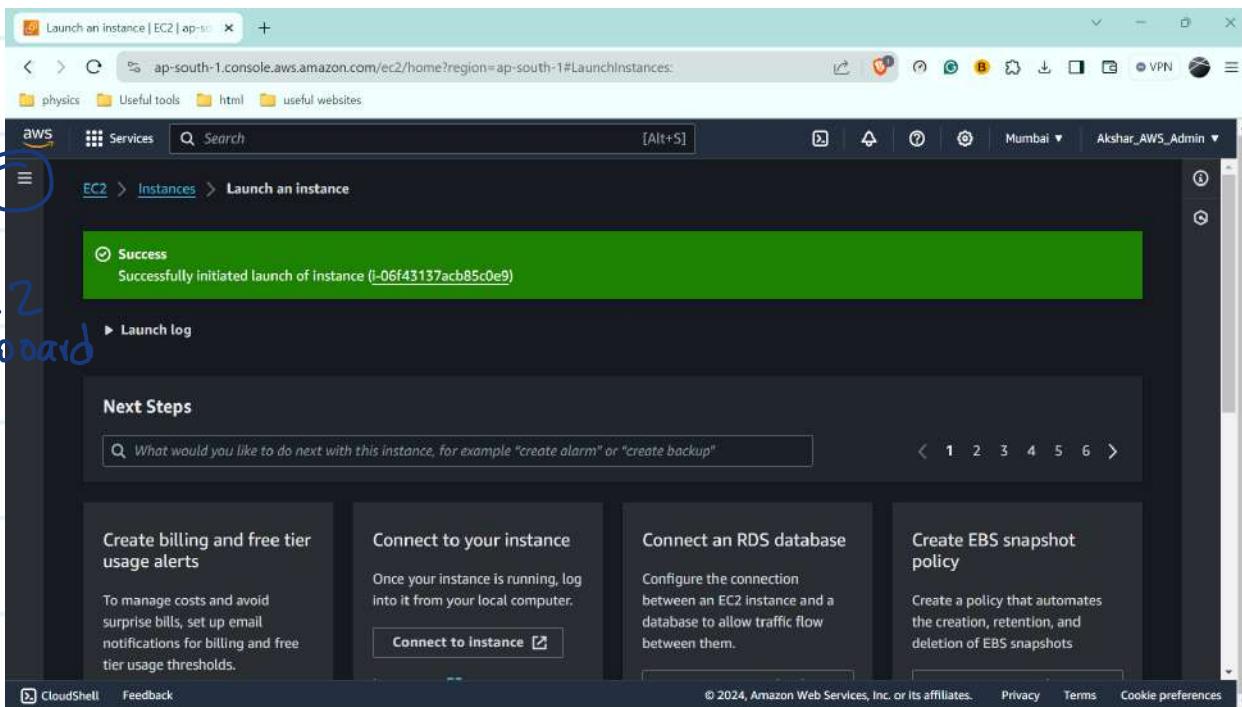


add security groprule.



make this field 5GiB

scroll down read summary then do launch instance



goto instances

Instances | EC2 | ap-south-1

Instances (1) Info Connect Instance state Actions Launch instances

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]

Instances (1/1) Info

Find Instance by attribute or tag (case-sensitive)

Any state

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
<input checked="" type="checkbox"/> 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 ID: ip-172-31-5-86.ap-south-1.compute.amazonaws.com	Private IP DNS name (IPv4 only) in-172-31-5-86.ap-south-1.compute.amazonaws.com	

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 as root user

↑
run this to update system

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 Q 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="text" value="0.0.0.0/0"/>	<input type="button" value="Delete"/>
-	HTTP	TCP	80	A... <input type="text" value="0.0.0.0/0"/>	<input type="button" value="Delete"/>

Add rule

ModifyInboundSecurityGroupRules

Inbound rules Info

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

Cancel Preview changes Save rules

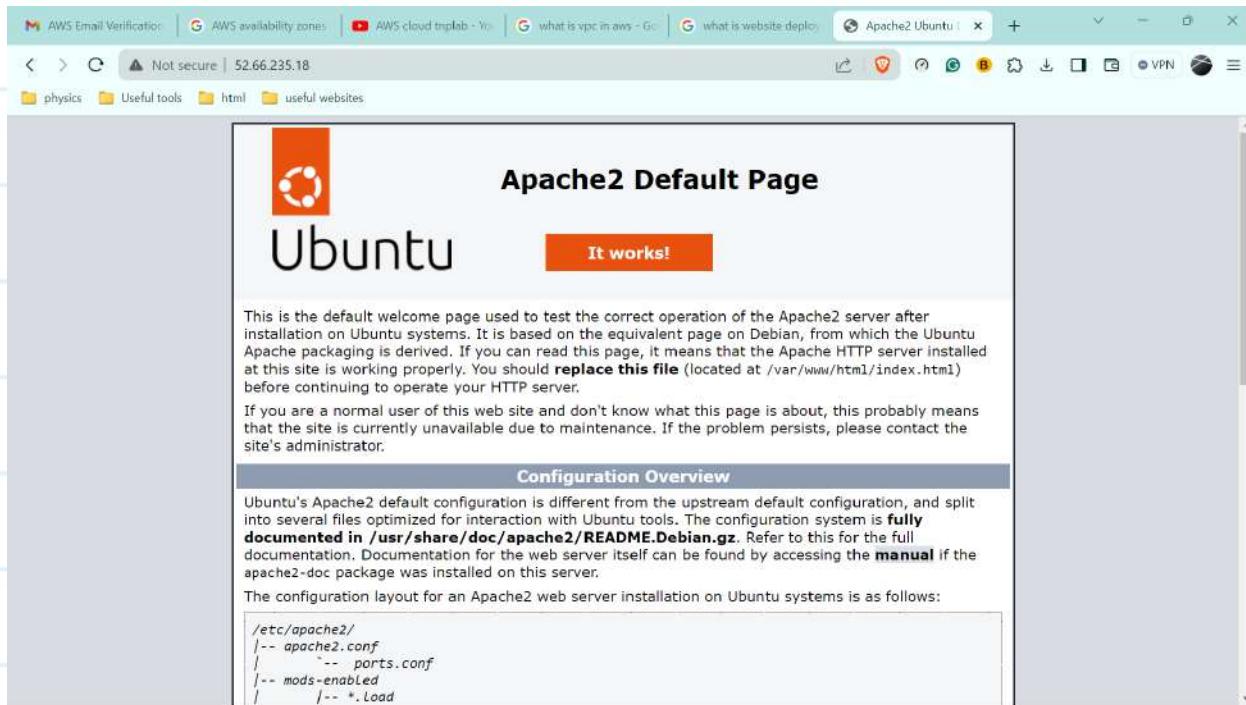
⚠ Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Anywhere

IPV4

q
saverule

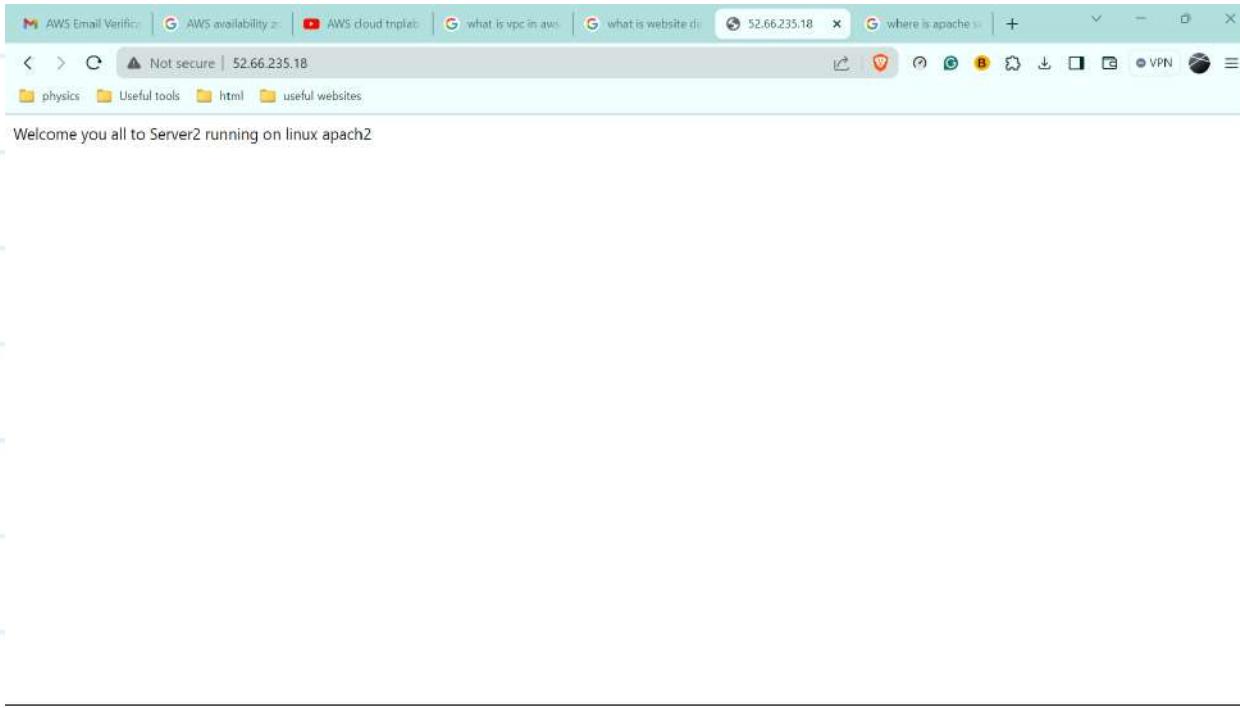
And then refresh browser tab with instance's IP address
You will see,



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 our 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,

Documents - WinSCP

New Site

Session

File protocol: SFTP
Host name: Port number: 22
User name: Password:
Save Advanced...
Show Login dialog on startup and when the last session is closed

IP for instance

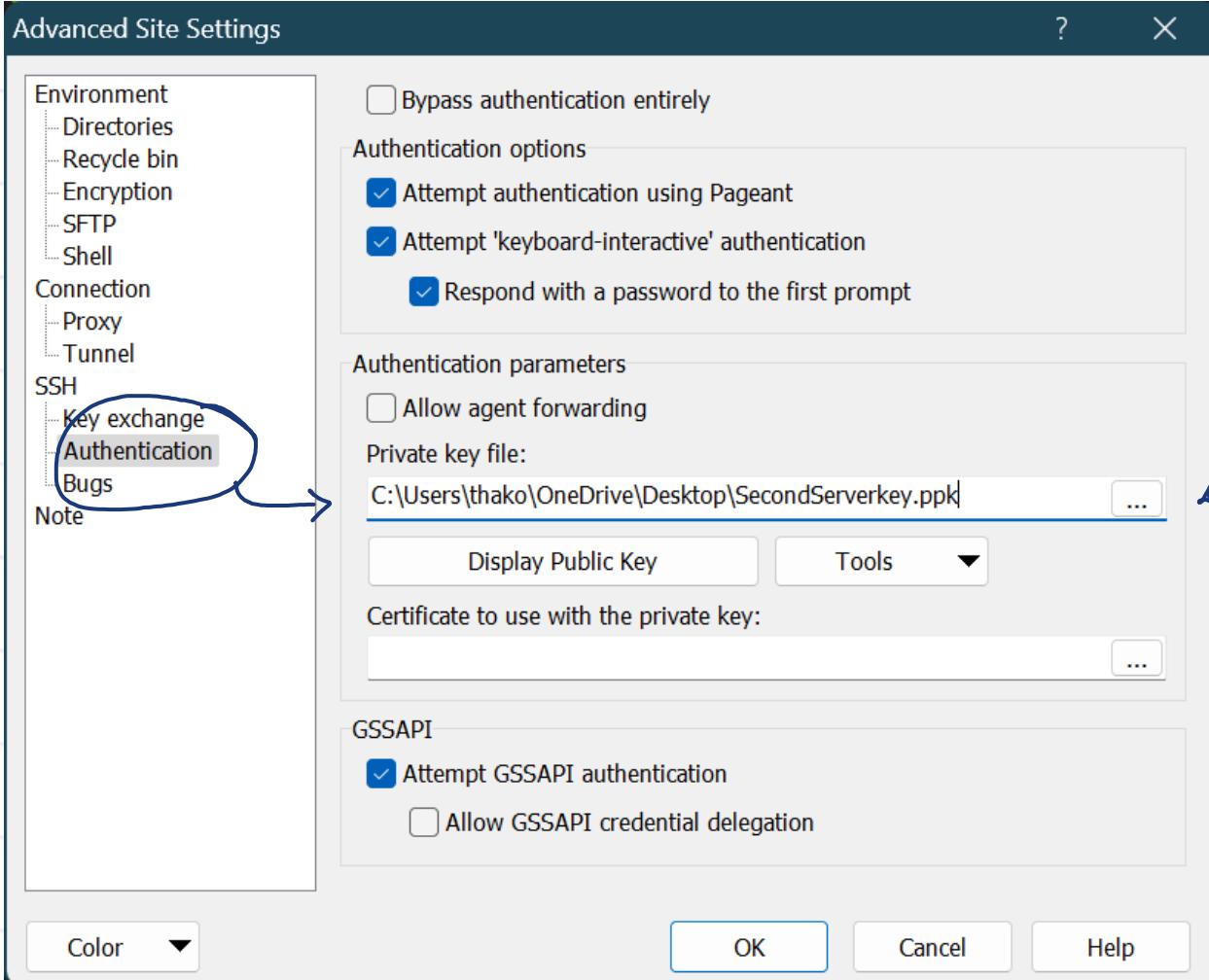
Username ubuntu

Instead of password go to advanced

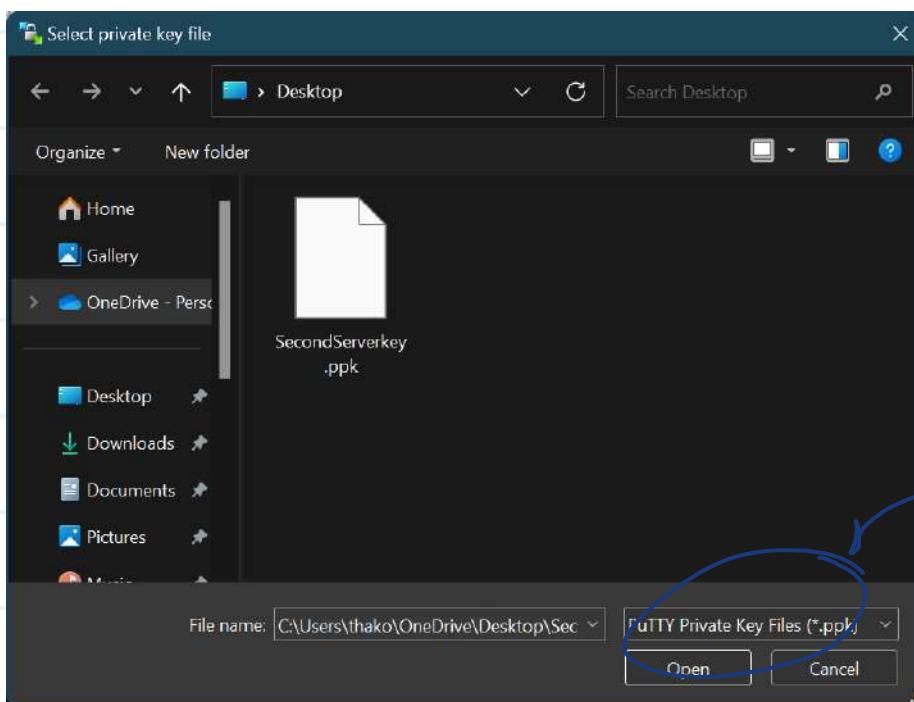
File folder 23-01-2021 13:59:44 File folder 17-12-2021 16:53:25 File folder 24-06-2021 15:16:15 File folder 25-04-2023 11:42:19 File folder 14-03-2024 09:50:11

File folder 11-01-2024 22:43:25 File folder 27-07-2023 16:57:29 File folder 17-08-2021 13:50:57 File folder 16-05-2021 15:57:08 File folder 10-05-2021 22:21:17 File folder 29-06-2023 18:43:48 File folder 18-08-2021 19:52:31 File folder 23-08-2021 23:58:48 File folder 14-02-2022 18:47:01 File folder 07-08-2021 23:43:08 File folder 19-01-2021 16:48:12 File folder 01-05-2022 16:53:37 File folder 23-10-2022 16:14:13 File folder 16-01-2024 22:08:36 File folder 08-06-2022 10:19:54 File folder 18-04-2023 14:45:53 File folder 06-08-2020 00:27:51 File folder 29-06-2023 22:29:05 File folder 24-01-2021 15:59:54 File folder 17-12-2021 16:53:25 File folder 24-06-2021 15:16:15 File folder 25-04-2023 11:42:19 File folder 14-03-2024 09:50:11

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

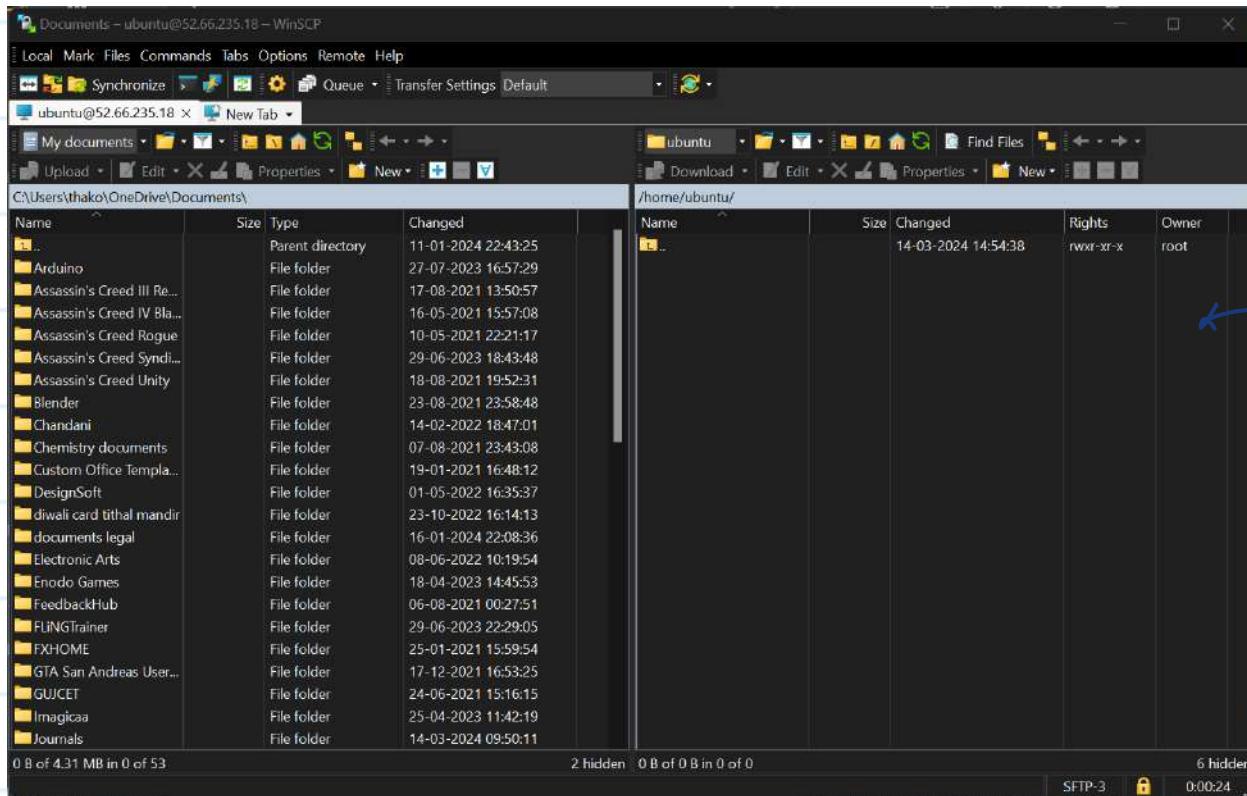


L and do OK
and there
will be
a confirmation
accept it.
you need
to select
au file
in file
format
then select
pem file
like



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 -iR /home/ubuntu/dir1 /var/www/html`

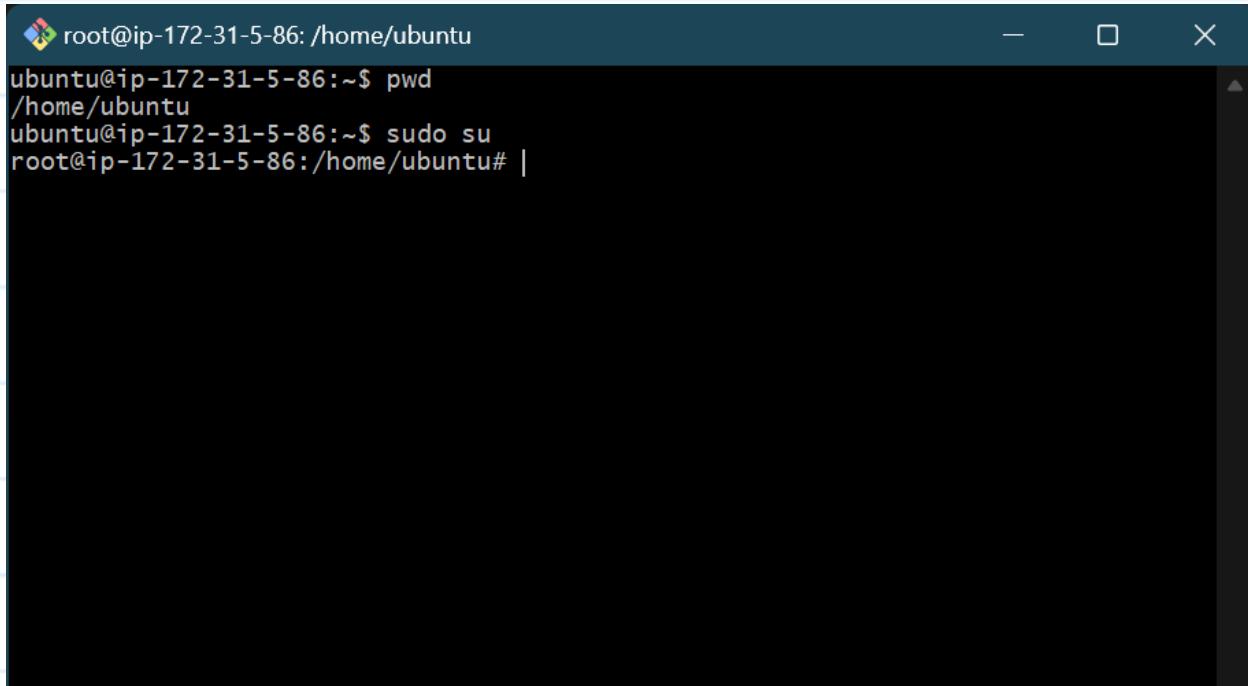
and we can see output on screen.

Above knowledge is required for Learning
ELB and ASG

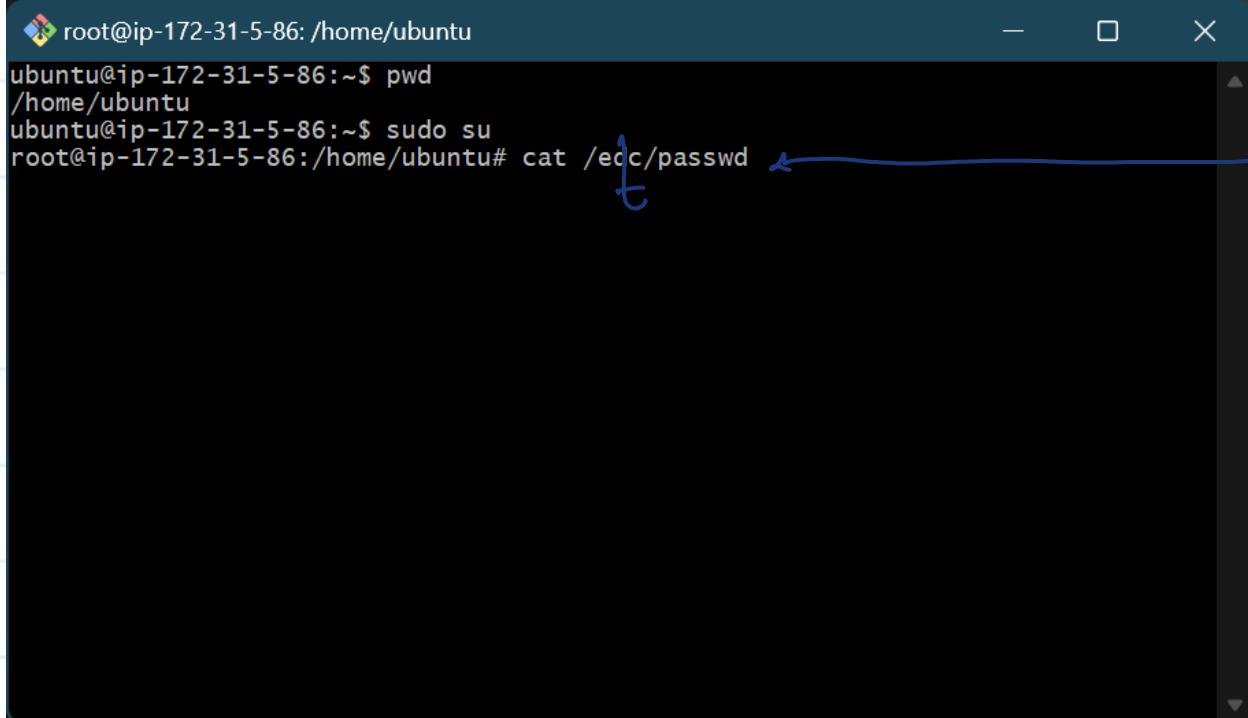
(Elastic Load balancing) (Auto scaling groups)

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 ↴

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
I 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

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

↳
in a
new
gitbash

goto root access gitbash a do following

```
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/shh
#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
#KerberosOrPamAuthentication yes
#KerberosTicketCleanup yes
#KerberosGetAFSToken no

# 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

```

→ find this
↑ Uncomment this line
→ make this yes

49,1 60%

↓
Press Esc
↓
Type `:' to get

```

root@ip-172-31-5-86:/etc/shh
#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
#PidFile /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

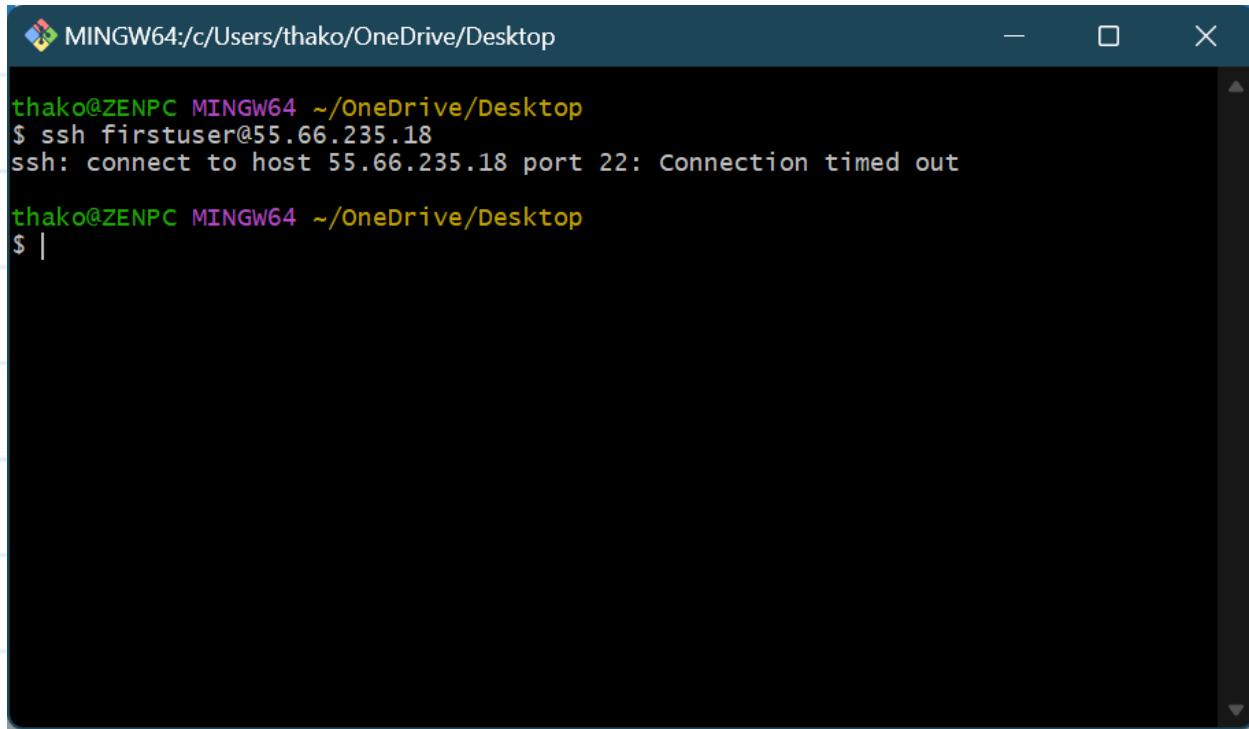
# Example of overriding settings on a per-user basis
#Match User anonymous
# X11Forwarding no
# AllowTcpForwarding no
# PermitTTY no
# ForceCommand cvs server
:wq

```

↓ 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 then shown again: "thako@ZENPC MINGW64 ~/OneDrive/Desktop \$ |".

this way multiple users can login to same VM together

task How to protect instance against accidental termination?

go to EC2 dashboard And Actions

AWS Services Search [Alt+S] Mumbai 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 CloudShell Feedback

Instances (1/2) Info C Connect Instance state Actions Launch instances

Find Instance by attribute or tag (case-sensitive)

Any state

Name	Instance ID
<input checked="" type="checkbox"/> MySecondServer	i-0e7715bc3e925d637
<input type="checkbox"/> MySecondServer	i-06f43137acb85c0

Attach to Auto Scaling Group
Change termination protection
Change stop protection
Change shutdown behavior
Change auto-recovery behavior
Change instance type
Change Nitro Enclaves
Change credit specification
Change resource based naming options
Modify instance placement
Modify Capacity Reservation settings
Edit user data
Allow tags in instance metadata
Manage tags
Modify instance metadata options

Instance: i-0e7715bc3e925d637 (MySecondServer)

Details Status and alarms Monit

Instance summary Info

Instance ID: i-0e7715bc3e925d637 (MySecondServer)
IPv6 address:
Hostname type: IP name: 172.31.5.86 ap-south-1 Public IP: 52.66.235.18 Private IP: 172.31.5.86 Private IP DNS name (IPv4 only): 172.31.5.86.ap-south-1.compute.amazonaws.com

Tags

Private IPv4 addresses: 172.31.5.86
Public IPv4 DNS: ec2-52-66-235-18.ap-south-1.compute.amazonaws.com [open address]

Change termination protection

Modify instance placement
Modify Capacity Reservation settings
Edit user data
Allow tags in instance metadata
Manage tags
Modify instance metadata options

Instance: i-0e7715bc3e925d637 (MySecondServer)

Details Status and alarms Monit

Instance summary Info

Instance ID: i-0e7715bc3e925d637 (MySecondServer)
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Tags

Private IPv4 addresses: 172.31.5.86
Public IPv4 DNS: ec2-52-66-235-18.ap-south-1.compute.amazonaws.com [open address]

Actions Launch instances

Connect View details Manage instance state Instance settings Networking Security Images and templates Monitor and troubleshoot

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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 (1/2) Info C Connect Instance state Actions Launch instances

Find Instance by attribute or tag (case-sensitive)

Any state

Name	Instance ID	Instance type	Status check	Alarm status
<input checked="" type="checkbox"/> MySecondServer	i-0e7715bc3e925d637	t2.micro	2/2 checks passed	View alarms +
<input type="checkbox"/> MySecondServer	i-06f43137acb85c0			View alarms +

Change termination protection

To prevent your instance from being accidentally terminated, you can enable termination protection for the instance. [Learn more](#)

Instance ID: i-0e7715bc3e925d637 (MySecondServer)

Termination protection: Enable

Cancel Save

Instance summary Info

Instance ID: i-0e7715bc3e925d637 (MySecondServer)
IPv6 address:
InstanceState: Pending Public IP: 52.66.235.18 Private IP: 172.31.5.86 Private IP DNS name (IPv4 only): 172.31.5.86.ap-south-1.compute.amazonaws.com

Tags

Private IPv4 addresses: 172.31.5.86
Public IPv4 DNS: ec2-52-66-235-18.ap-south-1.compute.amazonaws.com [open address]

and Save

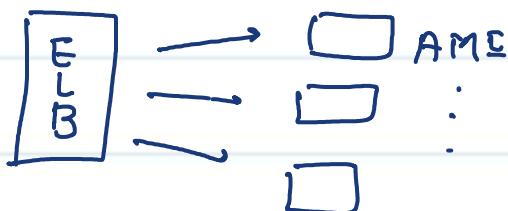
Elastic Load Balancing

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

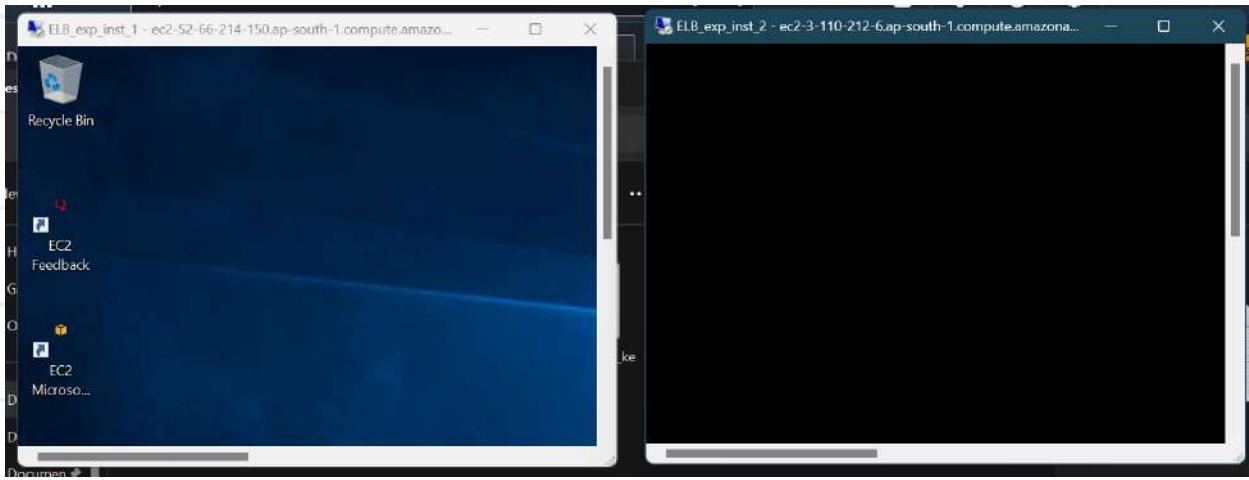
:



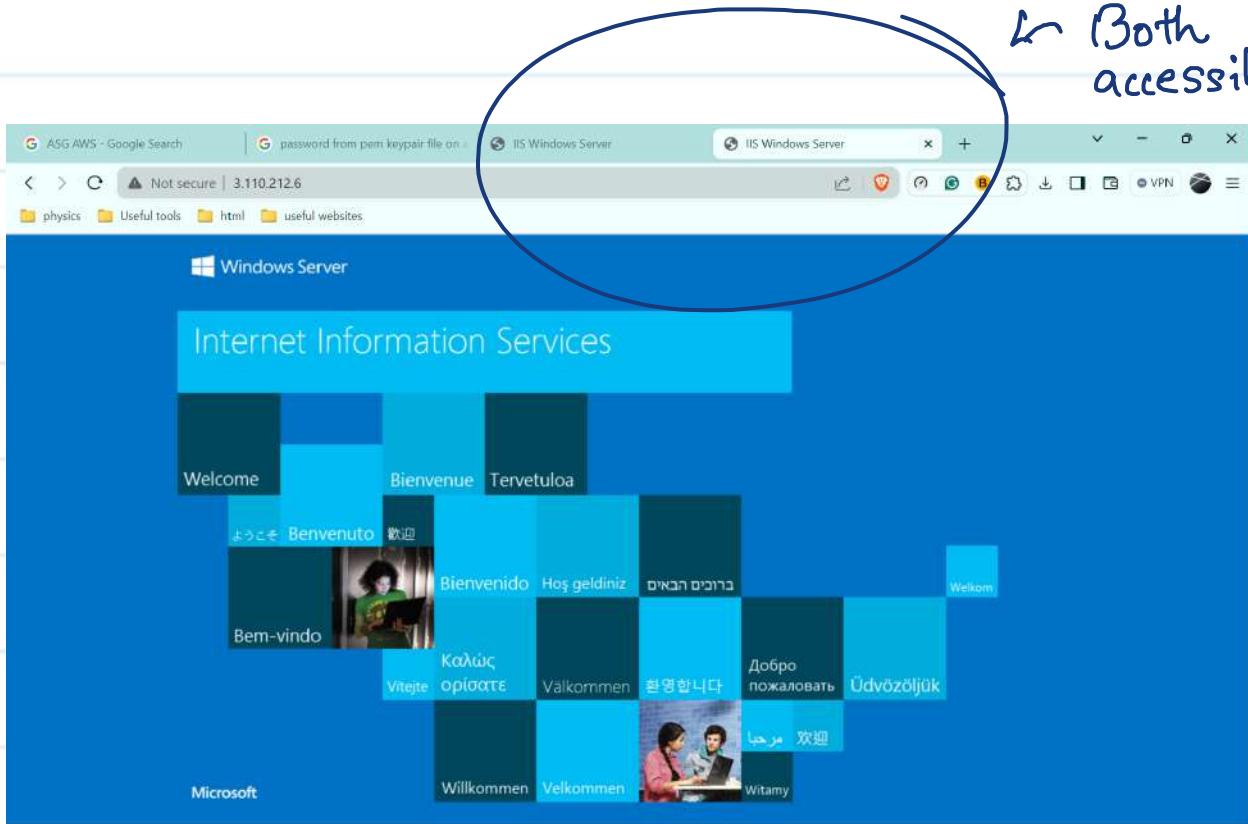
→ There is another service to handle such scenario with Auto Scaling Groups of overload. When to use ASG and When to ELB.

Task ELB & ASG

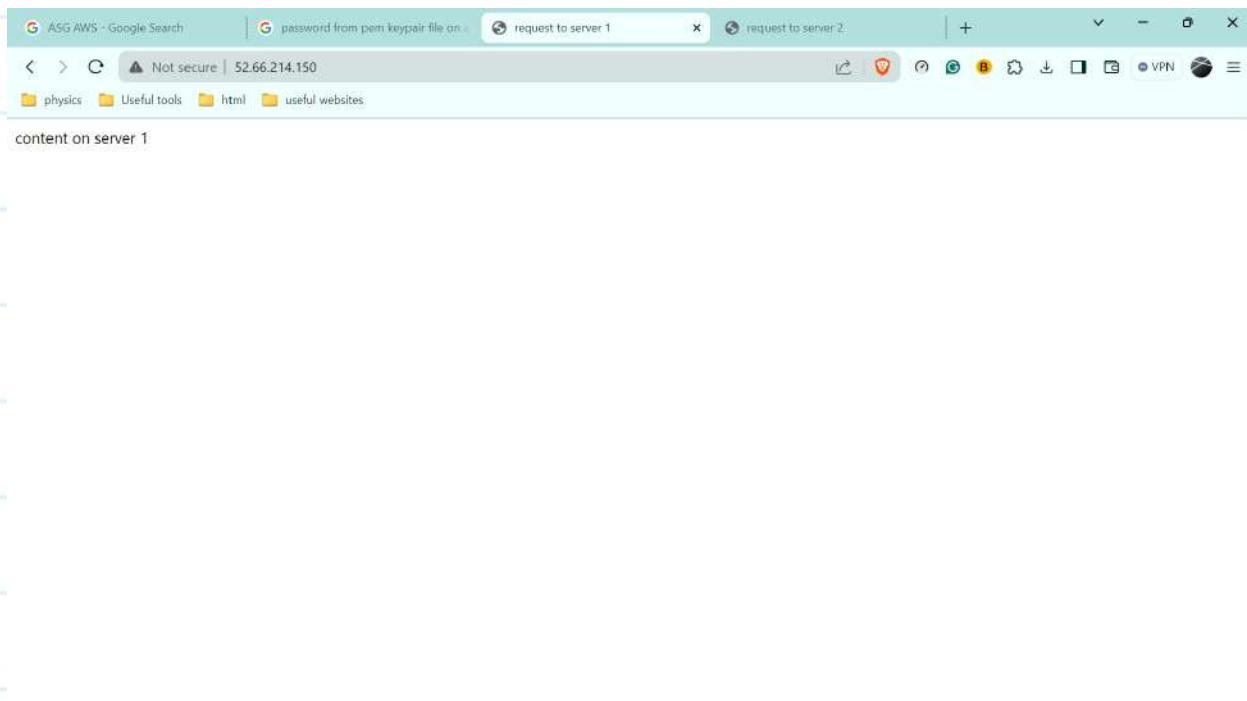
Create two EC2 instances and enable servers on both as well as, turn on port 80 HTTP.



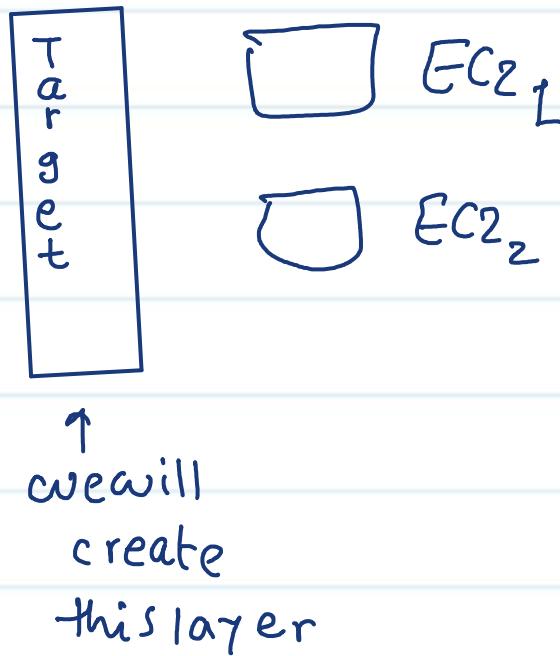
Let them turn on and make servers enable the 80 port



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



Process to create ECB



To do that,

Instances (1/2) Info

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
IPv6 address: -	Instance state: Running	Public IPv4 DNS: ec2-3-110-212-6.ap-south-1.compute.amazonaws.com [open address]
Hostname type: IP name in 172.31.38.29.ap-south...	Private IP DNS name (IPv4 only): 3.110.212.6	

Target group
create
target group and attach EC2 instances to it.

The screenshot shows the AWS EC2 Target Groups page. The left sidebar lists various services like Images, Elastic Block Store, Network & Security, Load Balancing, and Auto Scaling. Under Load Balancing, 'Target Groups' is selected. The main pane displays a table with columns: Name, ARN, Port, Protocol, and Target type. A message at the top 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 for creating a new target group. The title is 'Basic configuration'. It starts with a note: 'Settings in this section can't be changed after the target group is created.' Below this, there's a heading 'Choose a target type' with three options: 'Instances' (selected), 'IP addresses', 'Lambda function', and 'Application Load Balancer'. Each option has a list of benefits. 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.

The screenshot shows the AWS Load Balancer configuration interface. At the top, there are protocol selection options: HTTP1 (selected), HTTP2, and gRPC. Below this is a section titled "Health checks" with the sub-section "Health check protocol" set to "HTTP". The "Health check path" field contains a single slash (/). A blue circle highlights the "Advanced health check settings" link, which is located just below the path field. The "Attributes" section is visible at the bottom.

click this

This screenshot shows the "Advanced health check settings" configuration page. It includes fields for "Traffic port" (selected) and "Override". Under "Healthy threshold", the value is set to 5. Under "Unhealthy threshold", it is set to 2. The "Timeout" is set to 5 seconds. The "Interval" is set to 30 seconds. In the "Success codes" section, the input field contains "200". The footer of the page includes standard AWS links: CloudShell, Feedback, © 2024, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

The screenshot shows the AWS Lambda function configuration interface. The 'Code' tab is selected, displaying a single-line Python function. Below the code, there are sections for 'Environment variables' and 'Handler'. At the bottom right, there is a 'Save' button.

↑ Next
to create
target
group

The screenshot shows the AWS Lambda function configuration interface. The 'Code' tab is selected, displaying a single-line Python function. Below the code, there are sections for 'Environment variables' and 'Handler'. At the bottom right, there is a 'Save' button.

↖ select
instances
to add
to this
target
group

Available instances (2/2)

Instance ID	Name	State	Security groups
i-0ce17aedb50354aa5	ELB_exp_inst_2	Running	launched-wizard-2
i-08fce02afddbf804b	ELB_exp_inst_1	Running	launched-wizard-2

2 selected

Ports for the selected instances
Ports for routing traffic to the selected instances.

80
1-65535 (separate multiple ports with commas)

Review targets

Targets (0)

Review targets

Targets (0)

Review targets

Targets (2)

Create target group

2 pending

Ports for the selected instances
Ports for routing traffic to the selected instances.

80
1-65535 (separate multiple ports with commas)

Review targets

Targets (2)

Create target group

↑ click this

ELB-exp-targetgroup-1

Details

Target type	Protocol : Port	Protocol version	VPC
Instance	HTTP: 80	HTTP1	vpc-0535997132a5b9073
IP address type	Load balancer	<i>(None associated)</i>	
IPv4			
2 Total targets	0 Healthy	0 Unhealthy	2 Unused
	0 Anomalous		0 Initial
			0 Draining

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,

ELB-exp-targetgroup-1

Details

Target type	Protocol : Port	Protocol version	VPC
Instance	HTTP: 80	HTTP1	vpc-0535997132a5b9073
IP address type	Load balancer	<i>(None associated)</i>	
IPv4			
2 Total targets	0 Healthy	0 Unhealthy	2 Unused
	0 Anomalous		0 Initial
			0 Draining

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.

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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 Trust Stores New

Auto Scaling Auto Scaling Groups

EC2 > Load balancers

Introducing resource map for Application Load Balancers

Give feedback

Load balancers

Create load balancer

No load balancers

Create load balancer

0 load balancers selected

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Create
load
balancer

aws Services Search [Alt+S] Mumbai Akshar_AWS_Admin

Compare and select load balancer type

A complete feature-by-feature comparison along with detailed highlights is also available. Learn more

Load balancer types

Application Load Balancer Info

Choose an Application Load Balancer when you need a flexible feature set for your applications with HTTP and HTTPS traffic. Operating at the request level,

Network Load Balancer Info

Choose a Network Load Balancer when you need ultra-high performance, TLS offloading at scale, centralized certificate deployment, support for UDP, and

Gateway Load Balancer Info

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

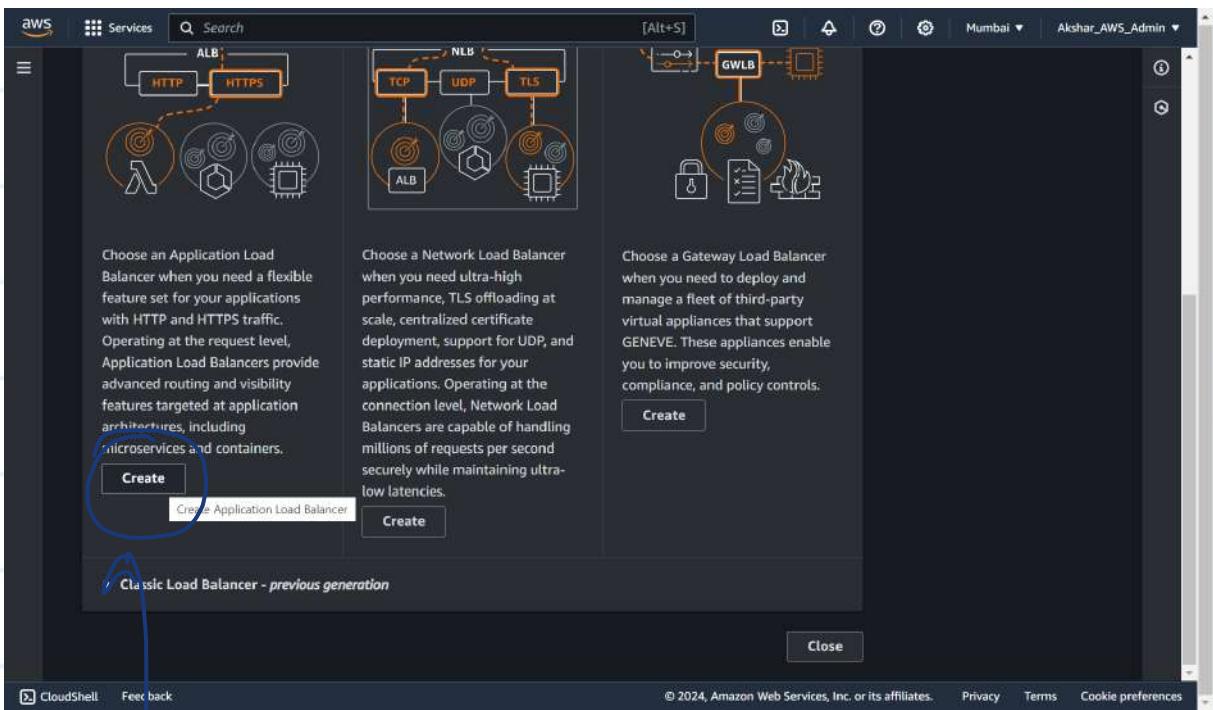
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different
load
balancers
shown

layer 7 layer 4

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

We will choose application load balancer.



create.

The screenshot shows the 'Basic configuration' step of the AWS Load Balancer creation wizard. It includes fields for:

- Load balancer name**: ELB_exp1_LoadBalancer1
- Scheme**: Internet-facing (selected)
- IP address type**: IPv4 (selected)
- Network mapping**: VPC (Info) - Select the virtual private cloud (VPC) for your targets or you can create a new VPC.

A handwritten note 'Name it' with an arrow points to the 'Load balancer name' field.

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
IPv4 address: Assigned by AWS

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Select all availability zone because it's not fixed where our instance will be

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-0f8a96a5ccdd5ed5 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: Info
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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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 <input type="button" value="Select a target group"/> <input type="button" value="Create target group"/>	<input type="button" value="Remove"/>
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.

You can add up to 50 more tags.

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 <input type="button" value="ELB-exp-targetgroup-1"/> <input type="button" value="HTTP"/> <input type="button" value="Create target group"/>	1-65535
Target type: Instance, IPv4			

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

You can add up to 50 more tags.

Add listener

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

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

Creation workflow and status

Server-side tasks and status

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

Cancel **Create load balancer** Privacy Terms Cookie preferences

Scroll
down
and
create

The screenshot shows the AWS EC2 Load Balancers console. A green success message box at the top says "Successfully created load balancer: ELB-exp1-LoadBalancer1". Below it, the main page for "ELB-exp1-LoadBalancer1" is displayed. A tooltip message "Introducing resource map for Application Load Balancers" is shown. The "Details" section shows the following information:

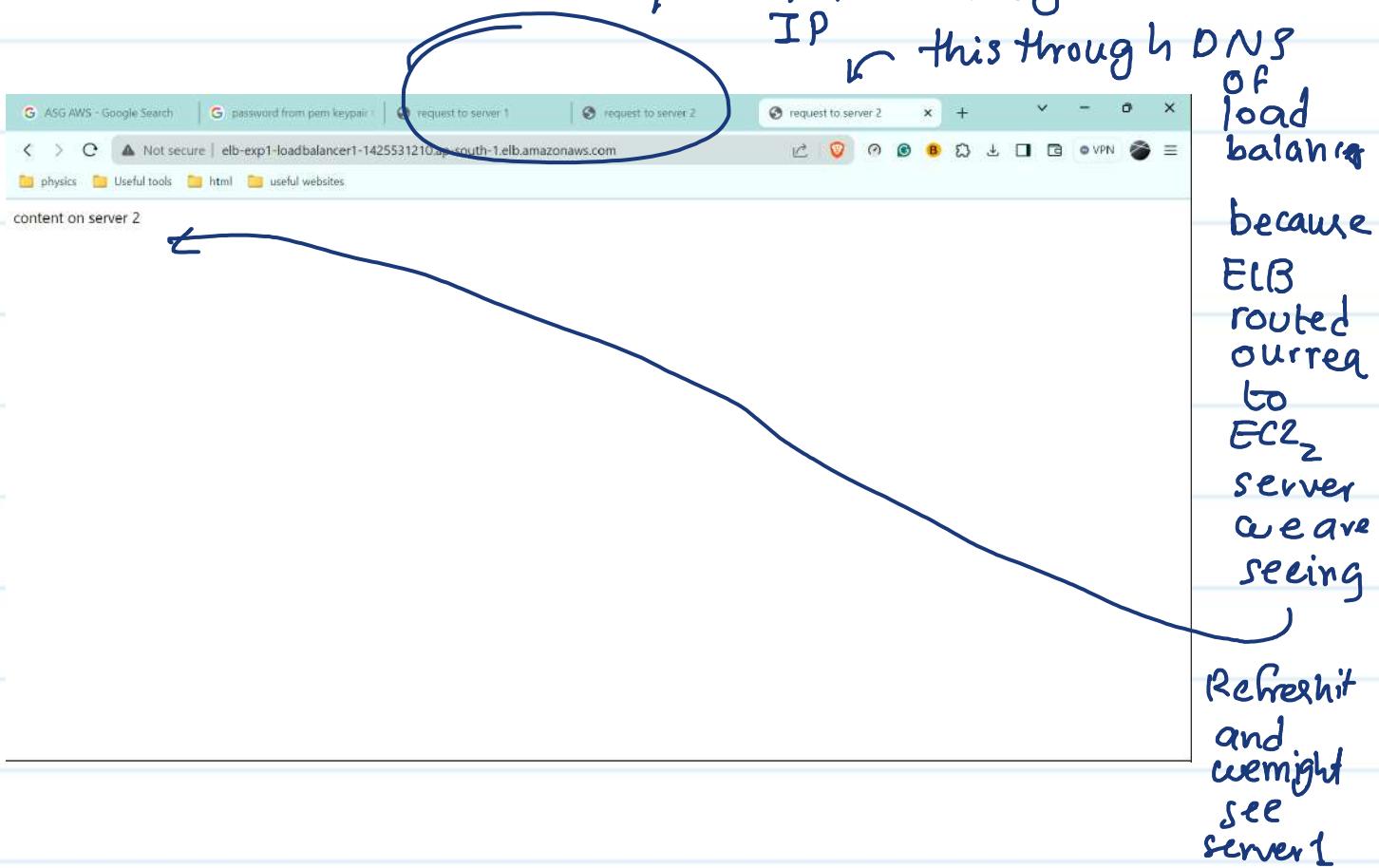
Load balancer type	Status	VPC	IP address type
Application	Provisioning	vpc-0535997132a5b9073	IPv4
Scheme	Internet-facing	Hosted zone: ZP97RAFLXTNZK	Date created: March 15, 2024, 10:15 (UTC+05:30)
		Availability Zones: subnet-0c46086ef0dec5e5, ap-south-1c (aps1-a22)	

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

ELB will accept the request and distribute the traffic

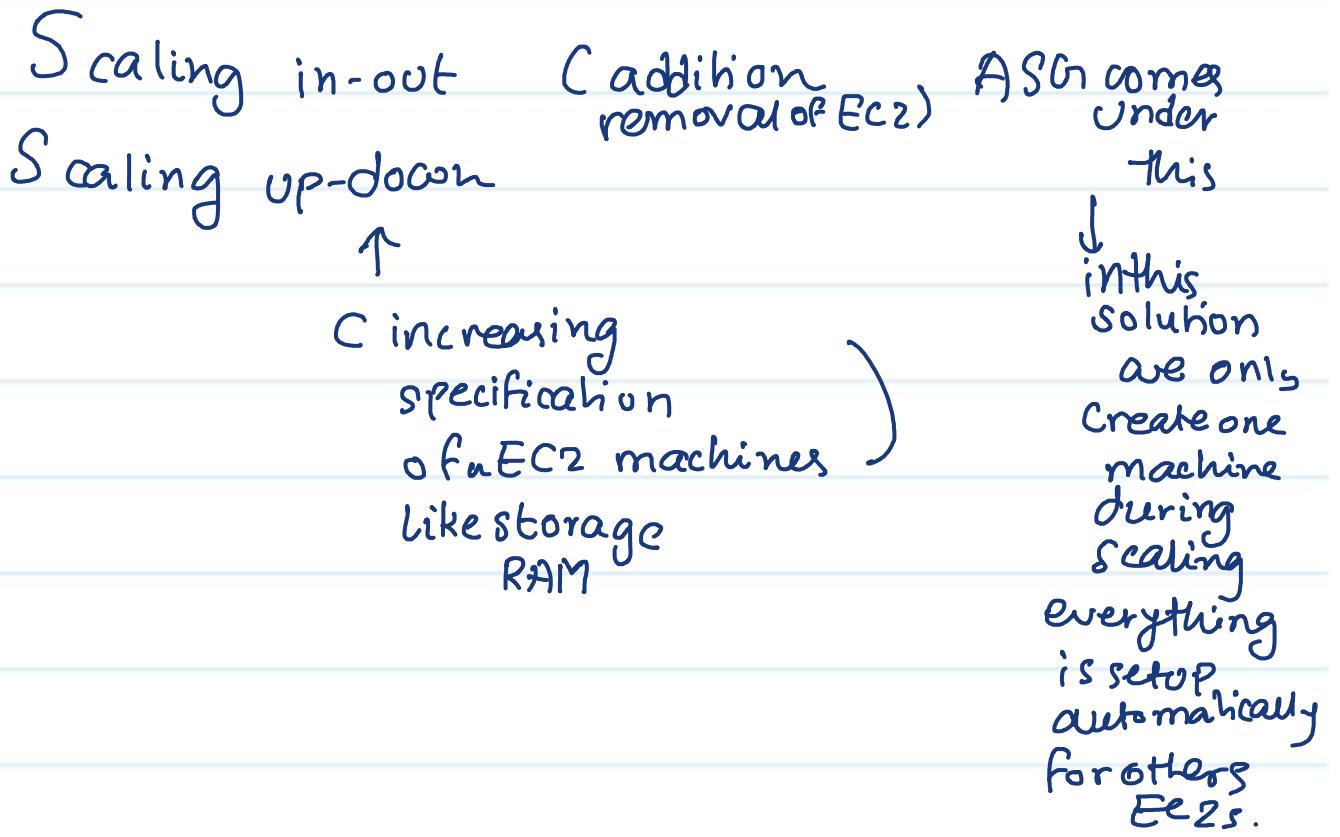
The screenshot shows the AWS Load Balancers console. A blue circle highlights the "DNS name" column in the "Load balancers (1/1)" table, which lists "ELB-exp1-LoadBalancer1" with the value "ELB-exp1-LoadBalancer1...". A blue arrow points from this highlighted text to the handwritten note "DNS Name".

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 cloud watch 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

77

```
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,

```

root@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:~$ 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

Select EC2 you want to create image for,

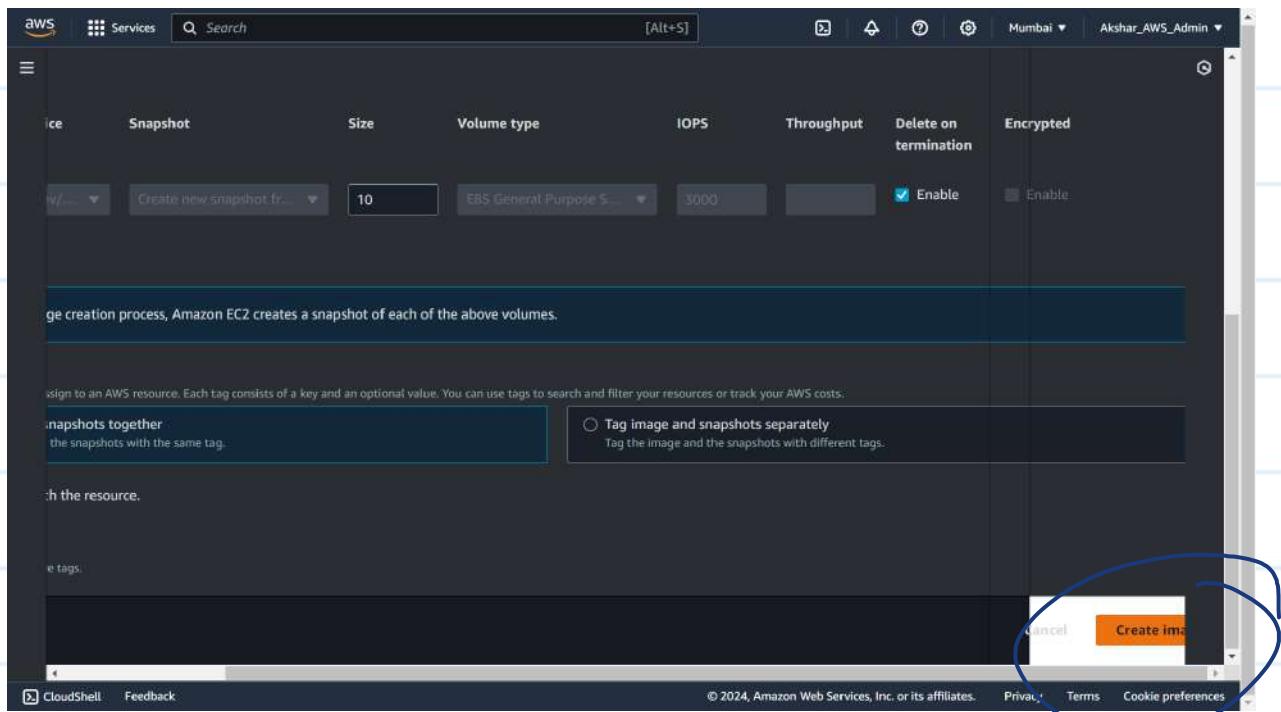
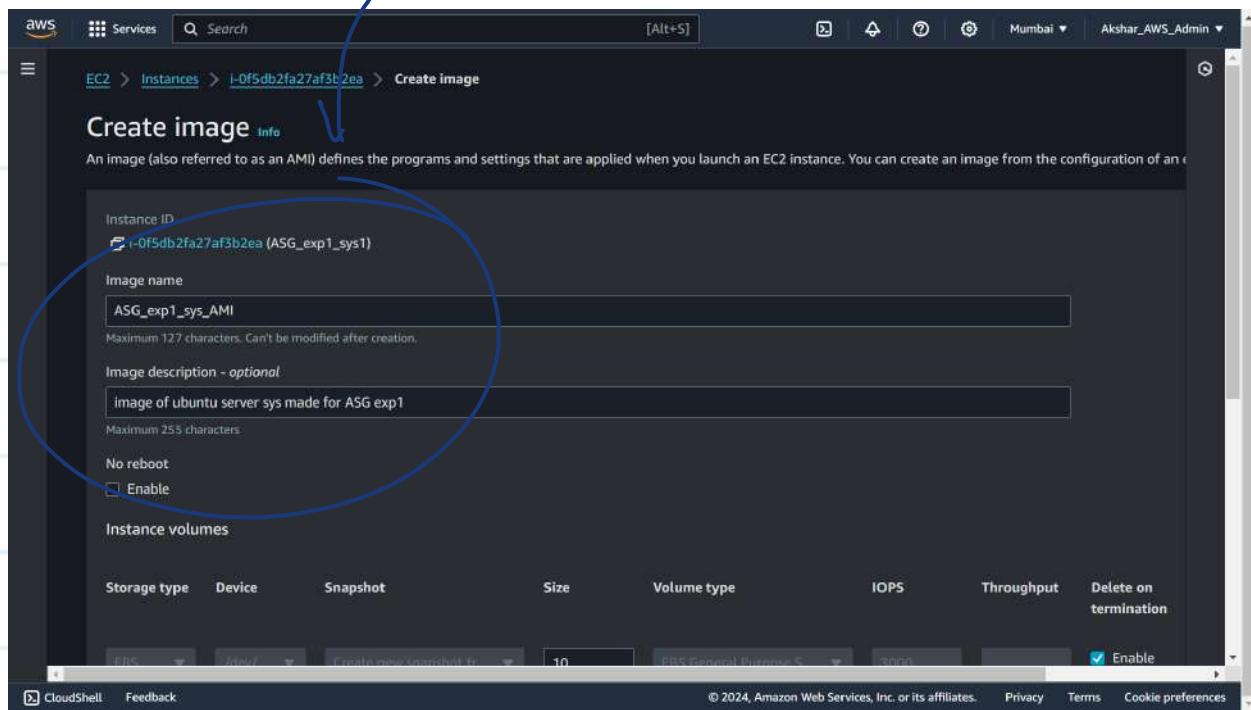
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In Action

Images and templates

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

Amazon Machine Images (AMIs) (1) Info

Owned by me Find AMI by attribute or tag

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

Select an AMI

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Now to create instances with this AMI

Select AMI and choose option launch instance
from this AMI

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

Owned by me Find AMI by attribute or tag

Actions Launch instance from AMI

Name	AMI name	AMI ID	Source
<input checked="" type="checkbox"/>	ASG_exp1_sys_AMI	ami-050fc8233af5a47d1	058264535684/ASG_exp1_sys_AMI

AMI ID: ami-050fc8233af5a47d1

Details Permissions Storage Tags

AMI ID <input type="button" value="Copy"/>	Image type machine	Platform details Linux/UNIX	Root device type EBS
AMI name <input type="button" value="Copy"/>	Owner account ID <input type="button" value="Copy"/>	Architecture x86_64	Usage operation RunInstances
Root device name <input type="button" value="Copy"/>	Status Pending	Source <input type="button" value="Copy"/>	Virtualization type hvm

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Name and tags

Name
e.g. My Web Server

Application and OS Images (Amazon Machine Image)

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 Recents My AMIs Quick Start

Amazon Machine Image (AMI)
ASG_exp1_sys_AMI
ami-050fc8233af5a47d1

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Name it

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

Instance type

t2.micro Family: t2 1 vCPU 1 GiB Memory Current generation: true Free tier eligible

All generations Compare instance types

Additional costs apply for AMIs with pre-installed software

Key pair (login)

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

Network Info vpc-0535997132a5b9073

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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, there is a radio button for 'Create security group' and another for 'Select existing security group'. The 'Select existing security group' option is selected, indicated by a blue arrow pointing to it. Below this, a dropdown menu titled 'Common security groups info' shows a single entry: 'launch-wizard-3 sg-019d963a01a55ea97 X'. A blue arrow points from the text 'select security group created for EC2(which we used to make AMI)' to this dropdown entry.

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 text 'Launch instance' to it.

Launch
instance

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

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-0ce17e3f50354aa5	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 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]

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

The screenshot shows the AWS EC2 Instances page with a list of four instances. The third instance, 'ASG_exp1_sys1' (Instance ID: i-0f5db2fa27af3b2ea), has a checkmark next to it. A blue arrow points from the handwritten note 'One way' to this checked instance. A large blue circle highlights the 'Actions' menu in the top right corner. Within the 'Actions' menu, another blue circle highlights the 'Attach to Auto Scaling Group' option, which is also circled in red in the original image.

→ Secondary

Creating a template after already creating a template

The screenshot shows the AWS EC2 Instances page with a list of four instances. The third instance, 'ASG_exp1_sys1' (Instance ID: i-0f5db2fa27af3b2ea), has a checkmark next to it. A blue arrow points from the handwritten note 'Secondary' to this checked instance. A large blue circle highlights the 'Actions' menu in the top right corner. Within the 'Actions' menu, a blue circle highlights the 'Create template from instance' option, which is also circled in red in the original image. Another blue circle highlights the 'Launch more like this' option below it.

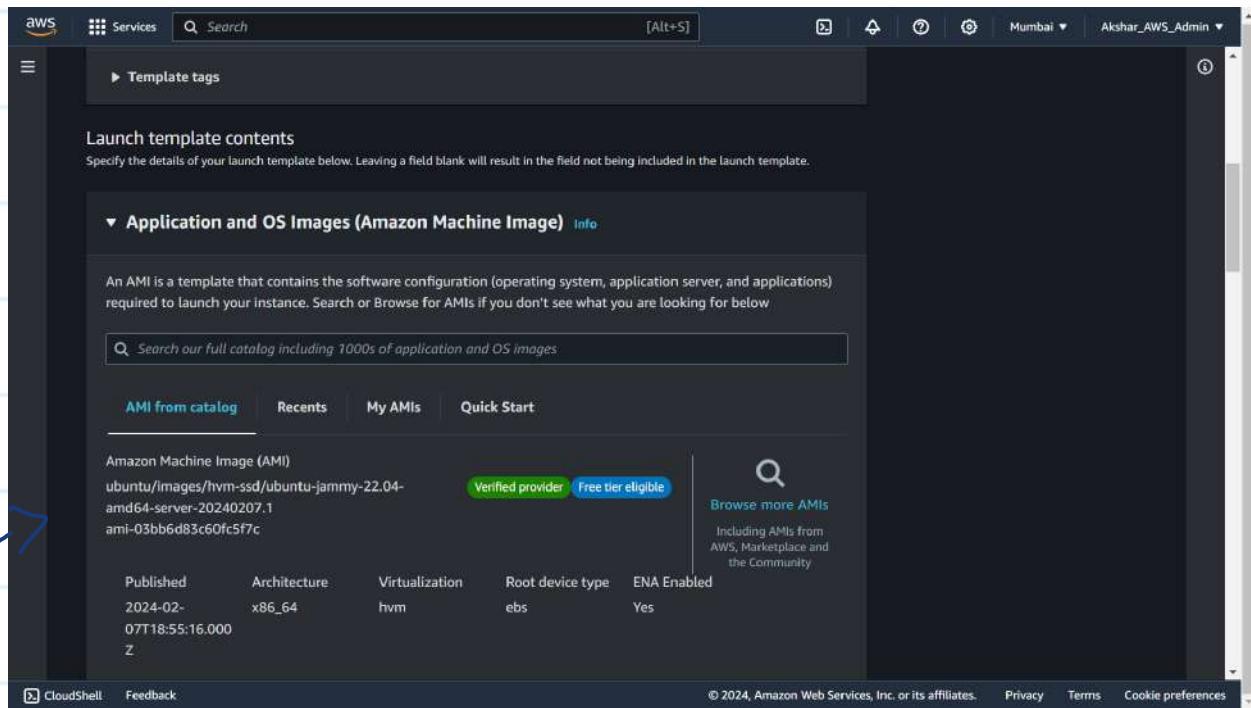
Action then

Create template from instance

Template can be created using EC2 instance when this is done template with just OS

OS
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

The screenshot shows the 'Instance type' configuration step in the AWS EC2 'Create instance' wizard. It displays the following details:

- Instance type:** t2.micro
- Family:** t2 - 1 vCPU 1 GiB Memory Current generation: true
- Pricing:** 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.
- Key pair (login):** ASG_exp1_key
- Network settings:** (Info)

A handwritten note on the right side of the screen says: "instance type keypair everything will be set from AMI".

The screenshot shows the 'Advanced details' configuration step in the AWS EC2 'Create launch template' wizard. It displays the following summary:

- Software Image (AMI):** Canonical, Ubuntu, 22.04 LTS, ...read more ami-03bb6d83c60fc5f7c
- Virtual server type (instance type):** t2.micro
- Firewall (security group):** launch-wizard-3
- Storage (volumes):** 1 volume(s) - 10 GiB

A blue circle highlights the yellow 'Create launch template' button at the bottom right.

The screenshot shows the success page after creating a launch template:

- Success:** Successfully created ASG_exp1_AMI_template(lr-0889fbab25d4a952).
- Next Steps:**
 - Launch an instance:** With On-Demand Instances, you pay for compute capacity by the second (for Linux, with a minimum of 60 seconds) or by the hour (for all other operating systems) with no long-term commitments or upfront payments. Launch an On-Demand Instance from your launch template.
 - Create an Auto Scaling group from your template:** Amazon EC2 Auto Scaling helps maintain application availability and allows you to scale your Amazon EC2 capacity up or down automatically according to conditions you define. You can use Auto Scaling to help ensure that you are running your desired number of Amazon EC2 instances during demand spikes to maintain performance and decrease capacity during lulls to reduce costs.
 - Create Auto Scaling group:**
 - Create Spot Fleet:** A Spot Instance is an unused EC2 instance that is available for less than the On-Demand price. Because Spot Instances enable you to request unused EC2 instances at steep discounts, you can lower your Amazon EC2 costs significantly. The hourly price for a Spot Instance (of each instance type in each Availability Zone) is set by Amazon EC2, and adjusted gradually based on the long-term supply of and demand for Spot Instances. Spot instances are well-suited for data-analysis, batch jobs,

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'. The main table displays one launch template entry:

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' under 'Load Balancing'. A blue circle highlights the 'Auto Scaling' section. The main table displays one auto scaling group entry:

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

↑
No go to
Auto scaling
Groups

Create Auto Scaling group

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

Create Auto Scaling group

How it works

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.

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 services used by the 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

Choose launch template

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

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

Version

Name
your
group

Choose 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

Version

Default (1)

ASG_exp1_AMI_template

AMI ID

Key pair name

Additional details

Storage (volume)

Date created

Cancel

Next

template

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 where availability zones and subnets your Auto Scaling group can use in the chosen VPC.

Select Availability Zones and subnets [?](#)

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

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

ap-south-1c | subnet-0c46086ef0deca5e5 X
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.

Select all availability zones

To add load balancers to our ASGs

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

Configure advanced options - optional [Info](#)

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 [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.

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 [Info](#)

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

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.

Screenshot of the AWS Auto Scaling Step 4 - optional: Configure group size and scaling page.

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.

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 limits 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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L
max
min
EC2

Screenshot of the AWS Auto Scaling Step 5 - optional: Add notifications page.

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	Prioritize availability	Control costs	Flexible
<input checked="" type="radio"/> No policy For rebalancing events, new instances will launch before terminating others. For all other events, instances terminate and launch at the same time.	<input type="radio"/> 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	<input type="radio"/> Terminate and launch Terminate and launch instances at the same time. This allows you to go below your desired capacity by a given percentage and may temporarily reduce availability.	<input type="radio"/> 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 launches and terminates 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

Created

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 Remove

Add notification

Cancel Skip to review Previous Next

SNS (Simple notification service)

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- Game Development

EC2

Virtual Servers in the Cloud

Console Home

View resource insights, service shortcuts, and feature updates

EC2 Instances in your Auto

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Build and run EDI-based workflows at cloud scale

Amazon EventBridge
Serverless service for building event-driven applications.

Managed Apache Airflow
Run Apache Airflow without provisioning or managing servers.

Amazon MQ
Managed message broker service for Apache ActiveMQ and RabbitMQ

Simple Notification Service
SNS managed message topics for Pub/Sub messaging

Simple Queue Service
SQS Managed Message Queues

Step Functions
Coordinate Distributed Applications

SWF
Workflow Service for Coordinating Application Components

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SNS

Amazon Simple Notification Service

Pub/sub messaging for microservices and serverless applications.

Amazon SNS is a highly available, durable, secure, fully managed pub/sub messaging service that enables you to decouple microservices, distributed systems, and event-driven serverless applications. Amazon SNS provides topics for high-throughput, push-based, many-to-many messaging.

Benefits and features

- Reliably deliver messages with durability**
Amazon SNS uses cross availability zone message storage to provide high message durability. Amazon SNS
- Automatically scale your workload**
Amazon SNS leverages the proven AWS cloud to dynamically scale with your application. Amazon SNS is a fully

Create topic

Pricing

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both shcos Lynch working mech for req handling

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](#)

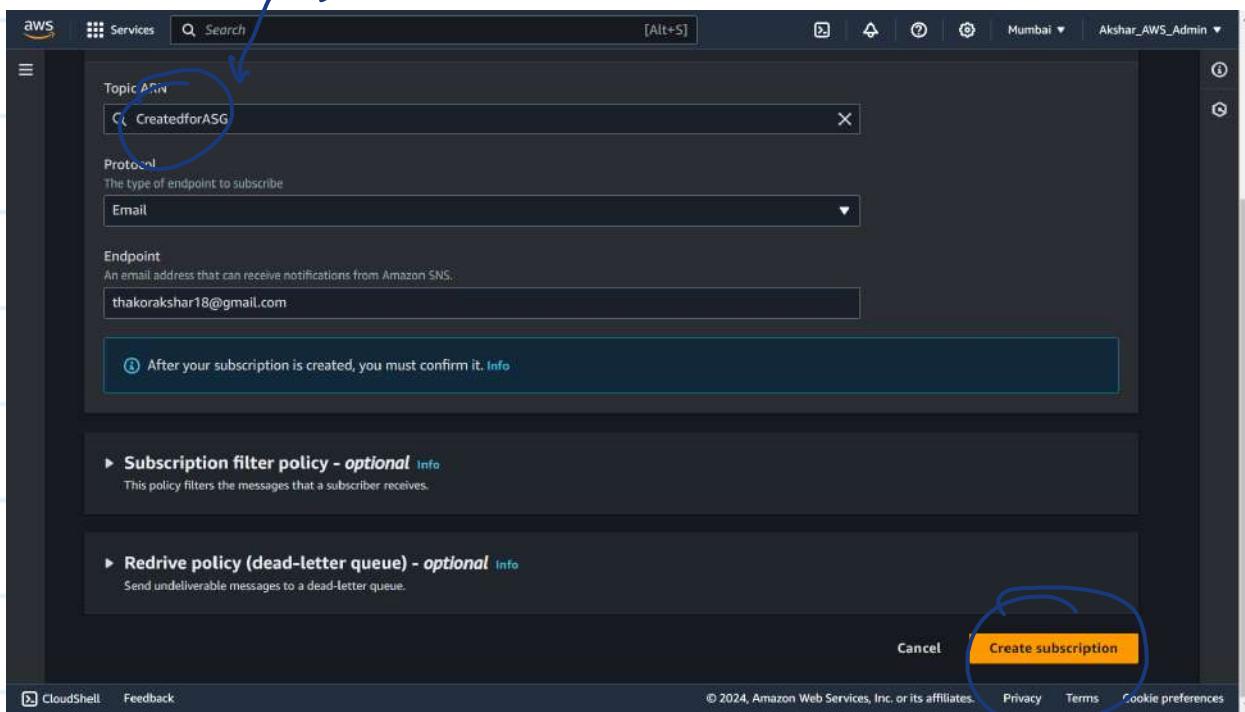
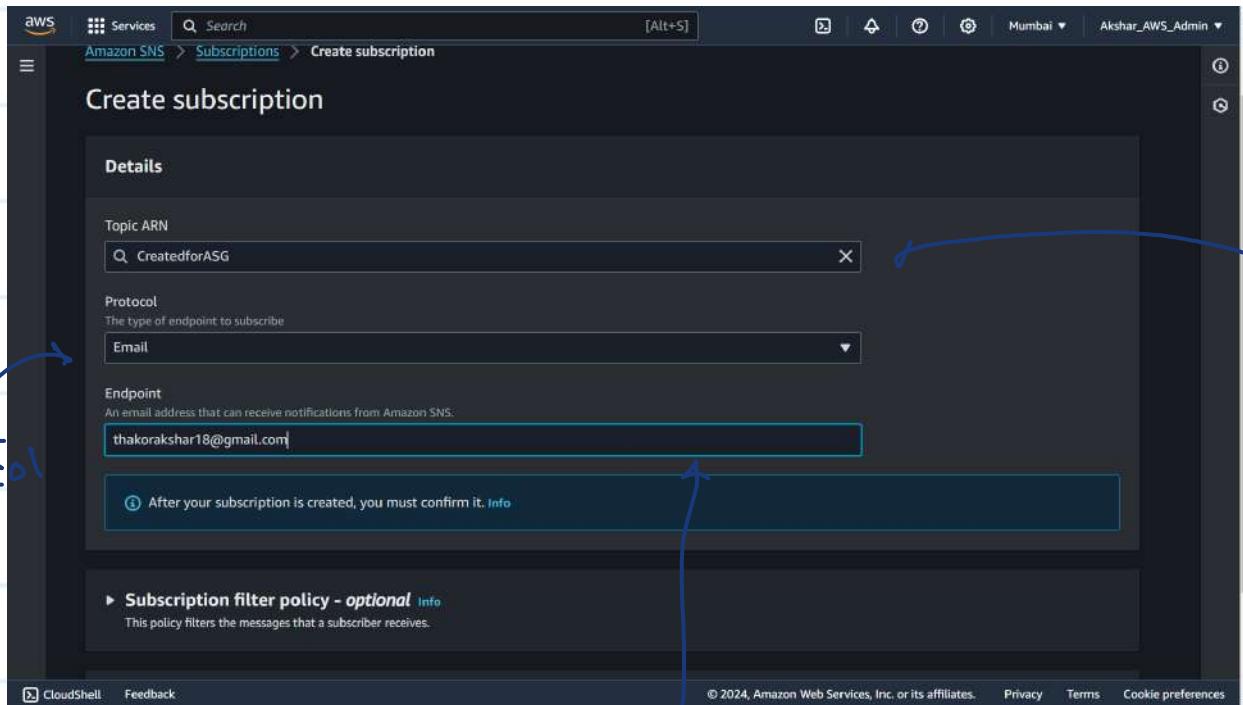
Active tracing - optional [Info](#)
Use AWS X-Ray active tracing for this topic to view its traces and service map in Amazon CloudWatch. Additional costs apply.

Create topic

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The screenshot shows the AWS SNS Topics page. On the left sidebar, 'Topics' is highlighted with a blue circle and a handwritten note 'subscription'. The main content area displays a green success message: '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), Topic owner (058264535684), and Type (Standard). At the bottom, there are tabs for Subscriptions, Access policy, Data protection policy, Delivery policy (HTTP/S), and Delivery status log.

The screenshot shows the AWS SNS Subscriptions page. On the left sidebar, 'Subscriptions' is highlighted with a blue circle and a handwritten note 'To create subscript! for where we want this service'. The main content area shows a table header for 'Subscriptions (0)' with columns ID, Endpoint, Status, Protocol, and Topic. A large orange 'Create subscription' button is prominently displayed at the top right of the table area. A blue arrow points from the handwritten note towards this button.



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

aws Services Search [Alt+S] Mumbai Akshar_AWS_Admin 104

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

Remove

Add notification

Cancel Skip to review Previous Next

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Select this

Next - Next - Next - till Review page

aws Services Search [Alt+S] Mumbai Akshar_AWS_Admin

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

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

Network

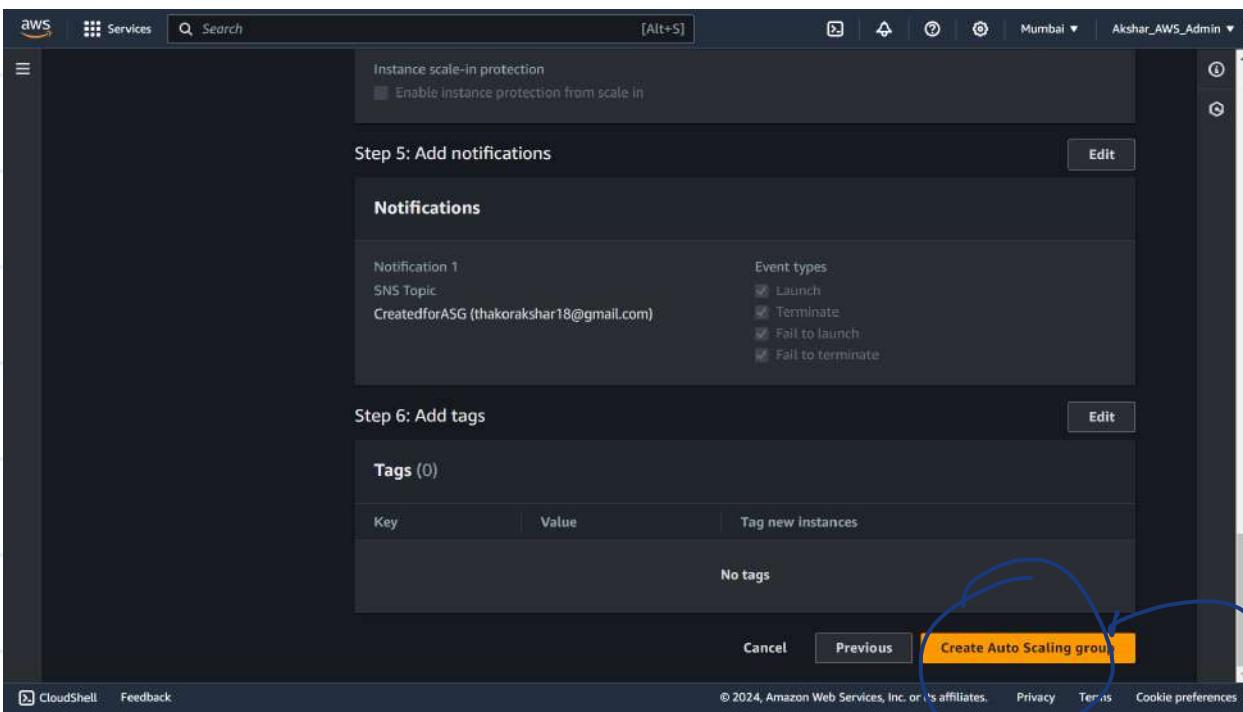
Network

VPC

Edit

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↓ scroll down



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 requests.

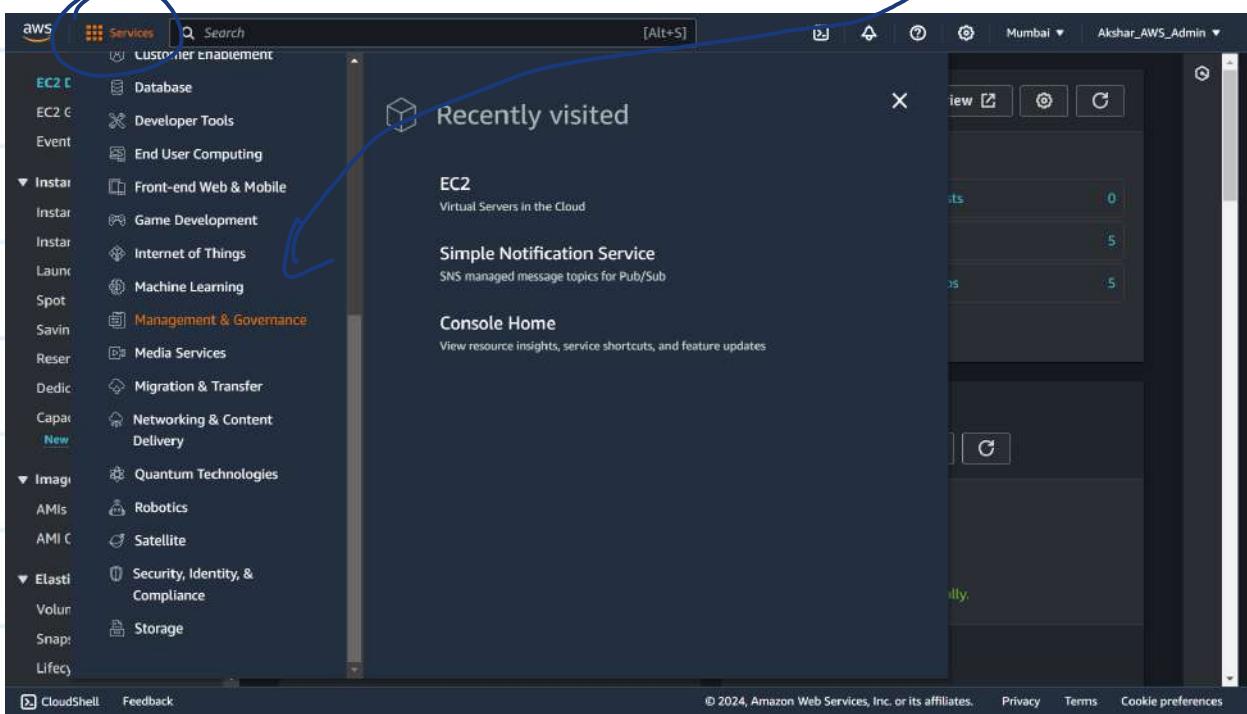
The screenshot shows the AWS EC2 Instances page. It displays a table of 8 instances with columns: Name, Instance ID, Instance state, Instance type, Status check, and Alarm status. The instances are labeled ASG_exp1_sys1, ASG_exp1_sys1, ELB_exp_inst_1, ELB_exp_inst_2, ASG_exp1_sys1, ASG_exp1_sys1, ASG_exp1_sys1, and ASG_exp1_sys1. Most instances are running, except for two which are terminated. A blue arrow points from the text 'As you can see additional instances are created' to the 'Launch instances' button at the top right of the table header.

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

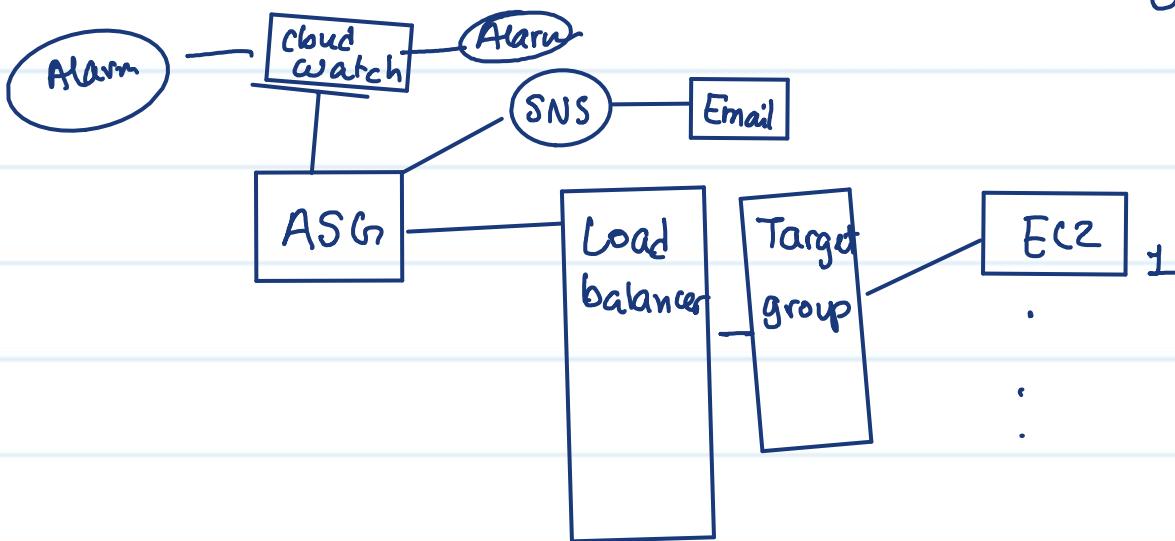
Cloud Management

Services and management & governance

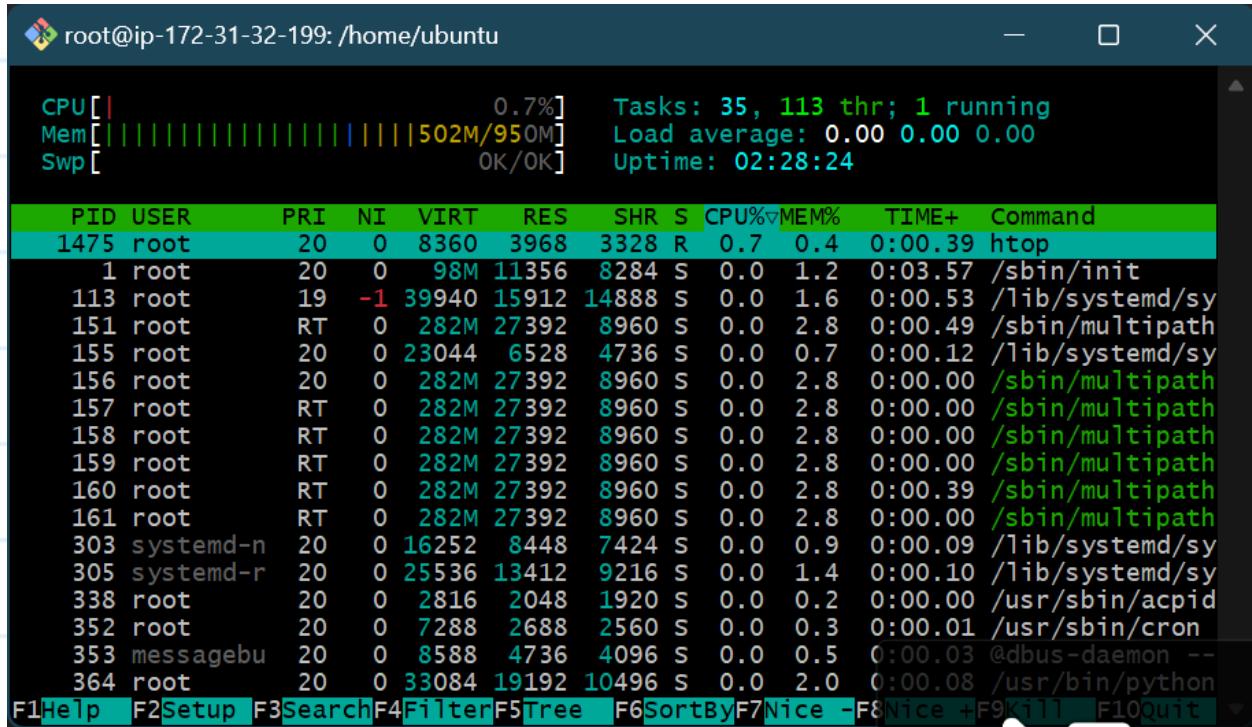


The screenshot shows the AWS CloudWatch service page. At the top, there are several cards: AWS Auto Scaling, AWS Chatbot, CloudFormation, CloudTrail, CloudWatch (which is highlighted with a blue oval), AWS Compute Optimizer, AWS Config, Control Tower, and Amazon Grafana. Below these cards, there are sections for Metrics, Logs, Metrics Insights, and Metrics Data. The left sidebar lists various AWS services under categories like EC2, Lambda, and CloudWatch.

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:

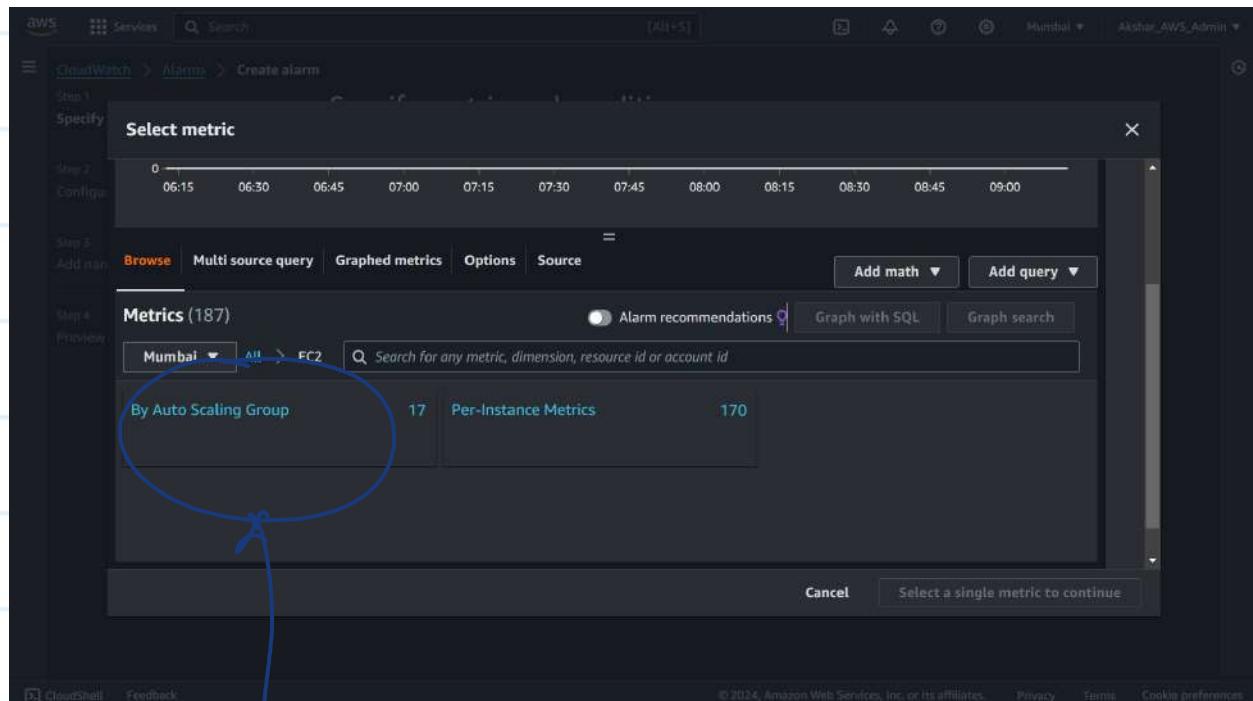
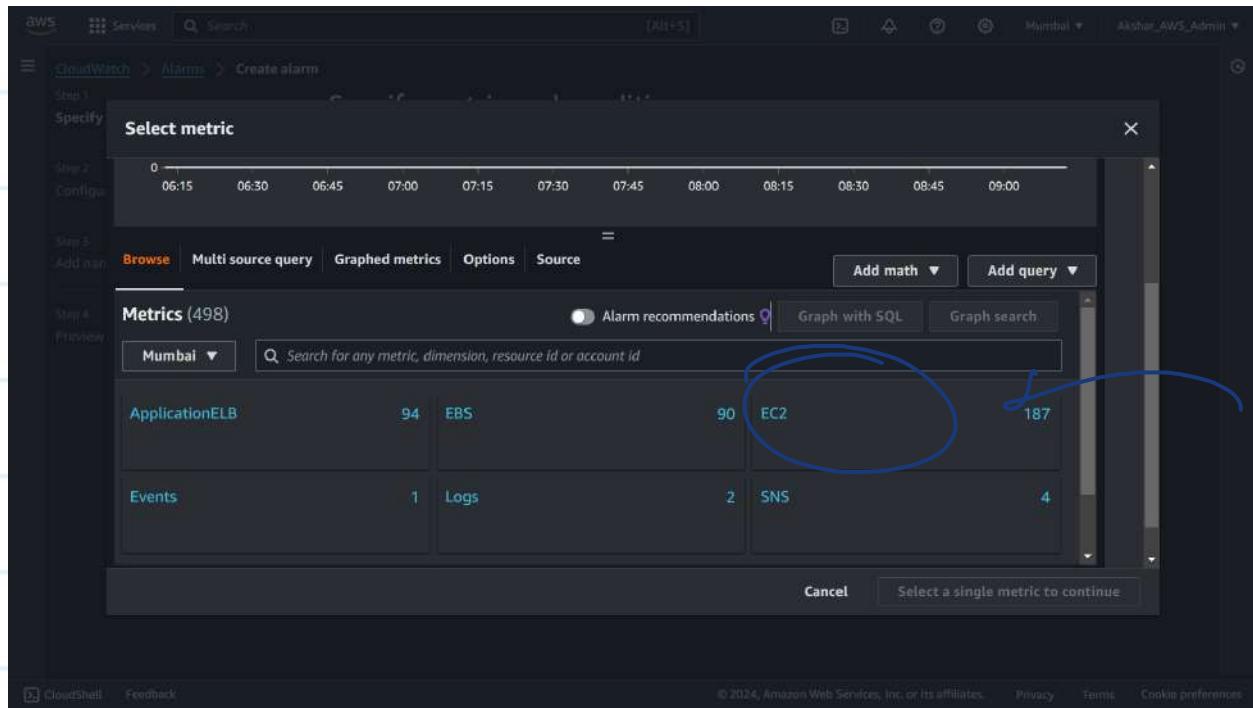
- System Statistics:**
 - CPU: 0.7%
 - Mem: 502M/950M (OK/OK)
 - Tasks: 35, 113 thr; 1 running
 - Load average: 0.00 0.00 0.00
 - Uptime: 02:28:24
- Process List:** A table showing processes sorted by CPU usage. The columns are: PID, USER, PRI, NI, VIRT, RES, SHR, S, CPU%, MEM%, TIME+, and Command. The top process is htop itself.
- Bottom Bar:** Function keys for Help, Setup, Search, Filter, Tree, SortBy, Nice, Kill, and Quit.

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, there's a sidebar with various monitoring options like Logs, Metrics, X-Ray traces, Events, Application Signals, Network monitoring, and Insights. Under the Alarms section, 'In alarm' is selected, and a blue circle highlights the 'All alarms' link. The main pane displays 'Alarms (0)' with a search bar and filters for 'Alarm state: In alarm', 'Alarm type: Any', and 'Actions status: Any'. A prominent orange 'Create alarm' button is at the top right of this pane, also circled in blue. Handwritten text 'Create alarm' is written in the top right corner of the image.

This screenshot shows the 'Specify metric and conditions' step of the 'Create alarm' wizard. On the left, a sidebar lists steps: Step 1 (Selected), Step 2, Step 3, and Step 4. The main area has a title 'Specify metric and conditions' and a 'Metric' section with a 'Select metric' button. Handwritten text 'Selecting metric for alarm.' is written over the 'Select metric' button. The 'Next' button is visible at the bottom right. The URL in the address bar is 'CloudWatch > Alarms > Create alarm'.



by auto scaling group.

The screenshot shows the 'Select metric' dialog box from the AWS CloudWatch Metrics interface. The 'Browse' tab is selected. The list of metrics for the resource 'ASG_exp1_AutoScalinggroup' includes:

- 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** (This item is highlighted with a blue circle and has a blue arrow pointing to it from the handwritten note)
- ASG_exp1_AutoScalinggroup NetworkPacketsIn ⓘ No alarms
- ASG_exp1_AutoScalinggroup NetworkIn ⓘ No alarms

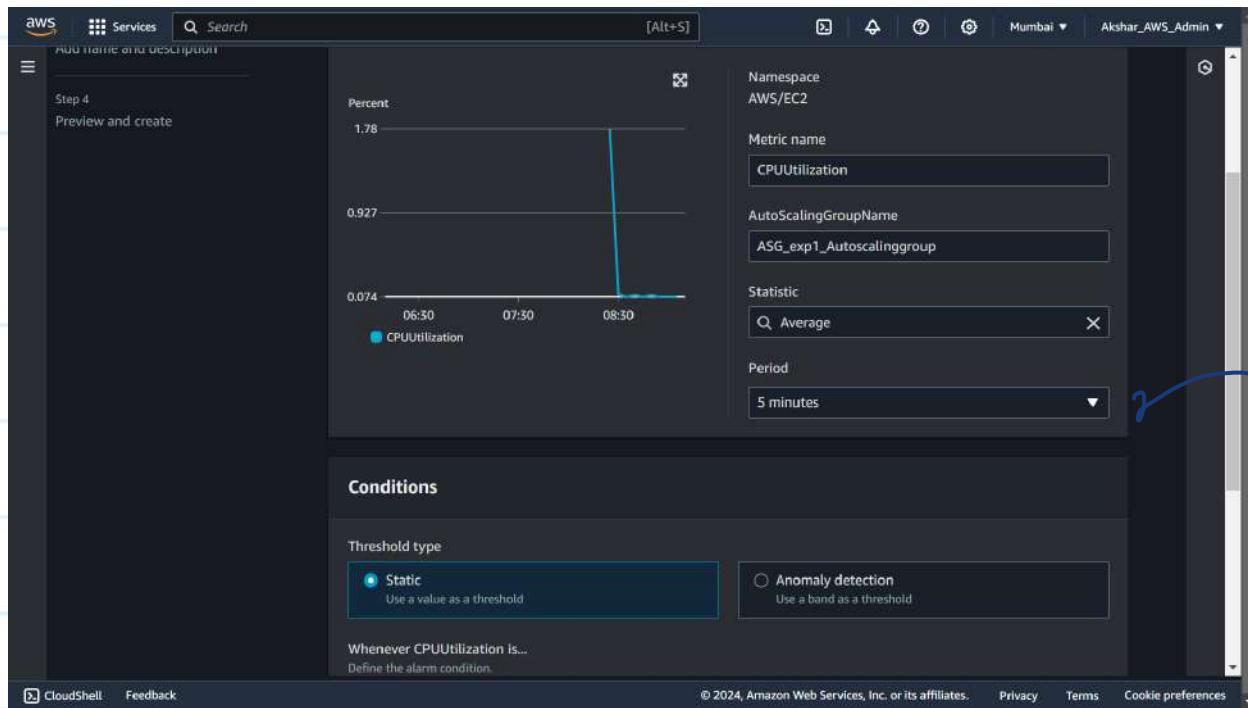
At the bottom right of the dialog box is a button labeled 'Select a single metric to continue'.

Select
CPU
utilization

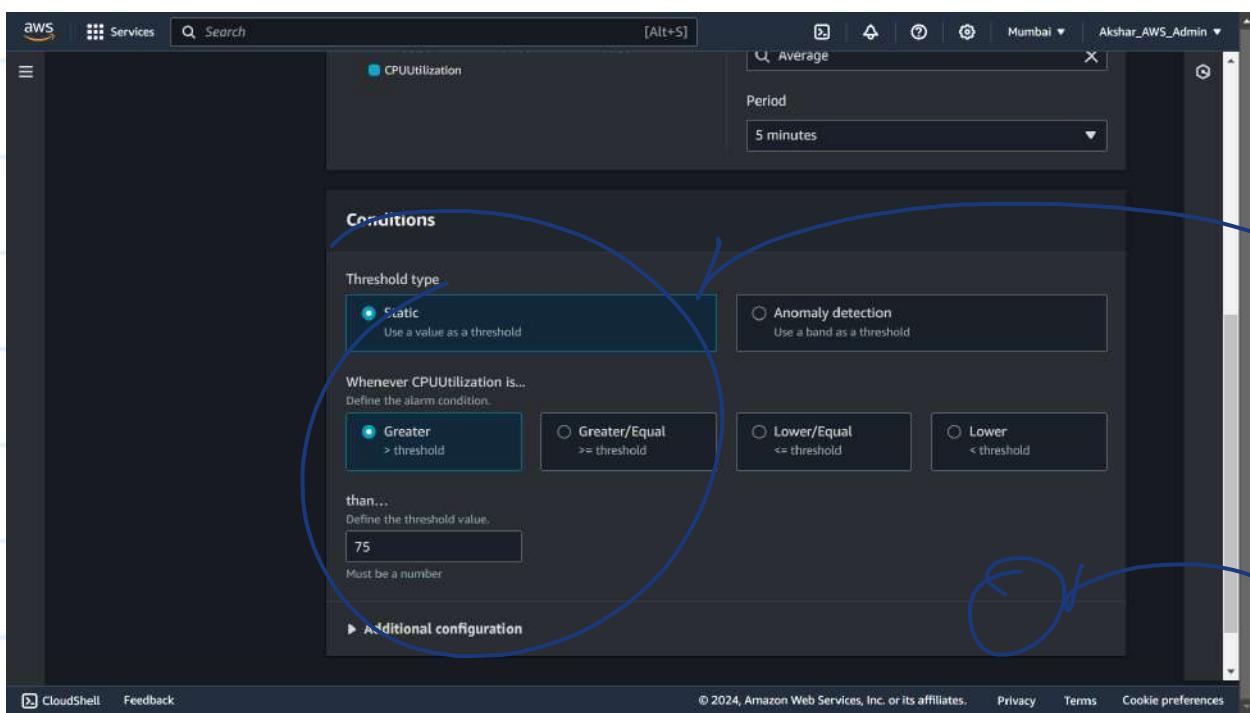
The screenshot shows the 'Select metric' dialog box with the 'CPUUtilization' metric selected, indicated by a blue circle and a checkmark icon. The list of metrics is identical to the previous screenshot.

At the bottom right of the dialog box is a button labeled 'Select metric'.

select
metric



5 minute
if less
it's
changeable



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

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

Add notification

Lambda action

Select
your
SNS

Scrolldown

Add Lambda action

Auto Scaling action

EC2 action

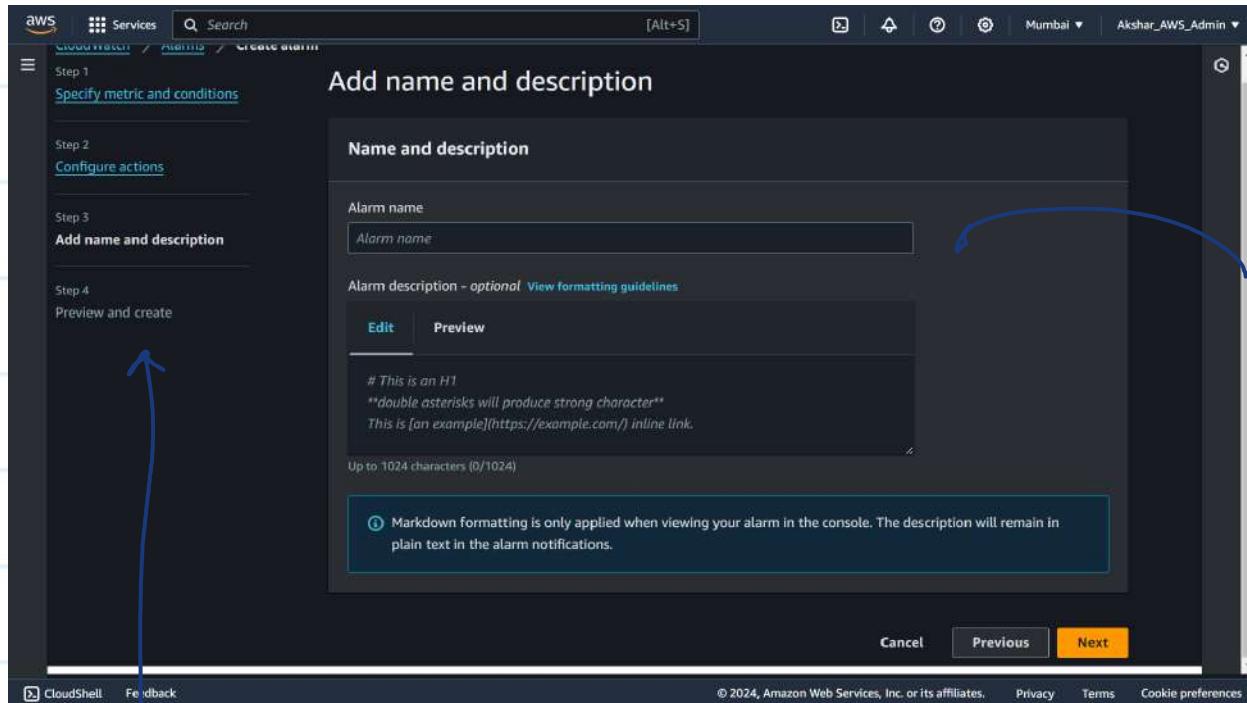
This action is only available for EC2 Per-Instance Metrics.
Add EC2 action

Systems Manager action Info

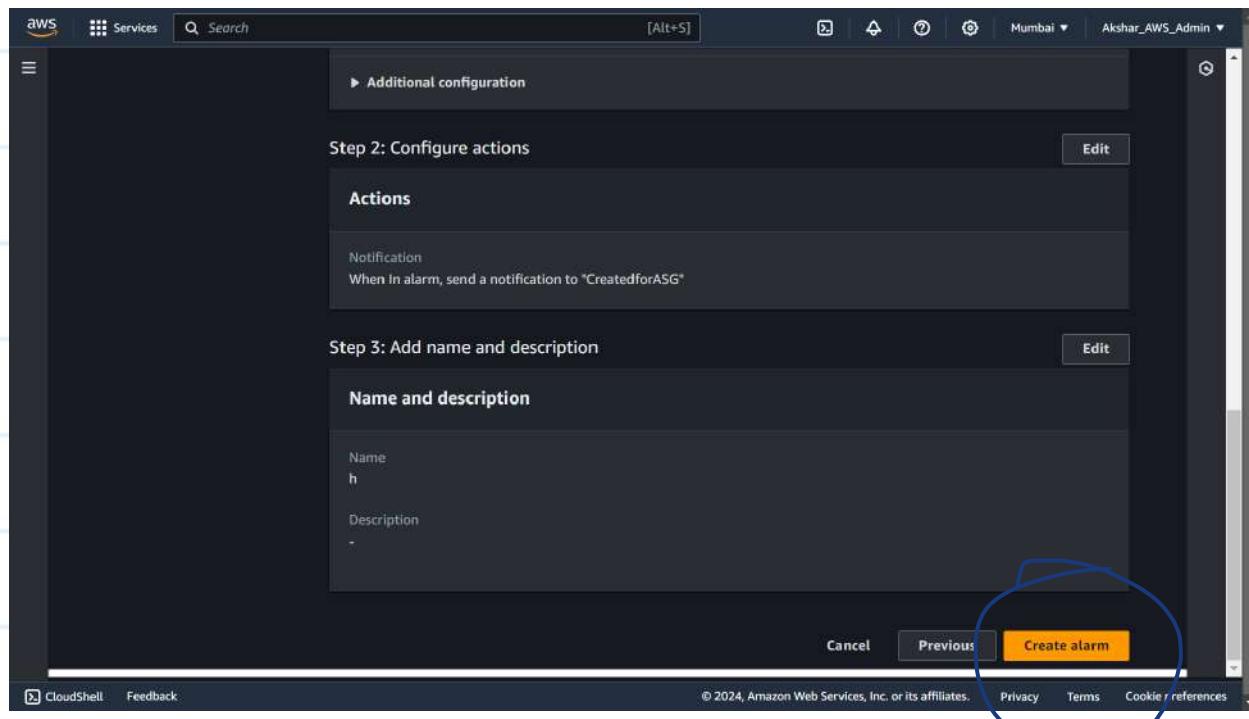
This action will create an Incident or OpsItem in Systems Manager when the alarm is **In alarm** state.
Add Systems Manager action

Cancel Previous Next

Next



Preview create
go scroll down



Make another alarm for lower limit CPU Utili ≤ 60

115

Then Go to EC2 dashboard again go to Scaling group

The screenshot shows the AWS EC2 Dashboard. On the left, there is a navigation sidebar with the following categories:

- Images
- Elastic Block Store
- Network & Security
- Load Balancing
- Auto Scaling (this option is circled in blue)

The main content area displays the following sections:

- Resources**: A summary of running instances, auto scaling groups, dedicated hosts, elastic IPs, instances, key pairs, load balancers, placement groups, security groups, snapshots, and volumes.
- Launch instance**: A button to start a new EC2 instance.
- Service health**: A link to the AWS Health Dashboard.
- EC2 Free Tier**: Information about the free tier offer.
- Account attributes**: Settings for data protection and security, zones, EC2 Serial Console, default credit specification, and console experiments.
- Explore AWS**: A link to explore other AWS services.

The screenshot shows the "Auto Scaling groups" page. The navigation sidebar is identical to the previous dashboard. The main content area shows the following:

- Auto Scaling groups (1/1)**: A table listing one Auto Scaling group named "ASG_exp1_Autoscalinggroup".
- Actions**: A dropdown menu with options like "Create Auto Scaling group" (highlighted in orange) and "Edit".
- Auto Scaling group: ASG_exp1_Autoscalinggroup**: A detailed view of the selected group. It includes tabs for "Details", "Activity", "Automatic scaling" (circled in blue), "Instance management", "Monitoring", and "Instance refresh".
- Group details**: Fields for Auto Scaling group name (ASG_exp1_Autoscalinggroup), 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" with arrows pointing from the text to the "Automatic scaling" tab and the "Edit" button.

inside that scroll you will find

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	View details

Auto Scaling group: ASG_exp1_Autoscalinggroup

Dynamic scaling policies (0) [Info](#)

[Actions](#) [Create dynamic scaling policy](#)

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

Create dynamic scaling policy

Policy type: Simple scaling

Scaling policy name:

CloudWatch alarm: Choose an alarm that can scale capacity whenever: [Create a CloudWatch alarm](#)

Take the action: Add 0 capacity units

And then wait: 300 seconds before allowing another scaling activity

[Cancel](#) [Create](#)

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Select
simple
scaling

Create dynamic scaling policy

Policy type: Simple scaling

Scaling policy name: scale_in_policy

CloudWatch alarm: ASG_cpuctl_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

name policy

choose alarm according policy

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

Create dynamic scaling policy

Policy type: Simple scaling

Scaling policy name: scale_out_policy

CloudWatch alarm: ASG_cpuctl_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	Availability
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...

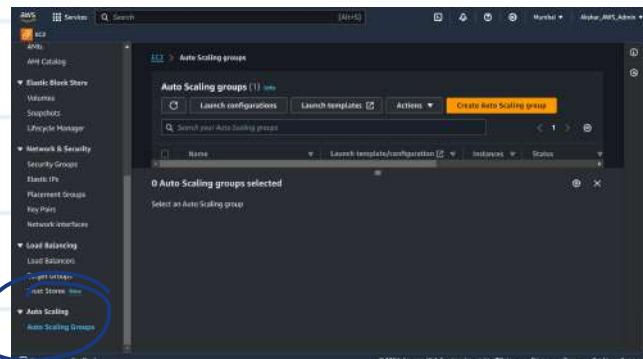
Instances (8) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Available
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...

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
<input checked="" type="checkbox"/> 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

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)

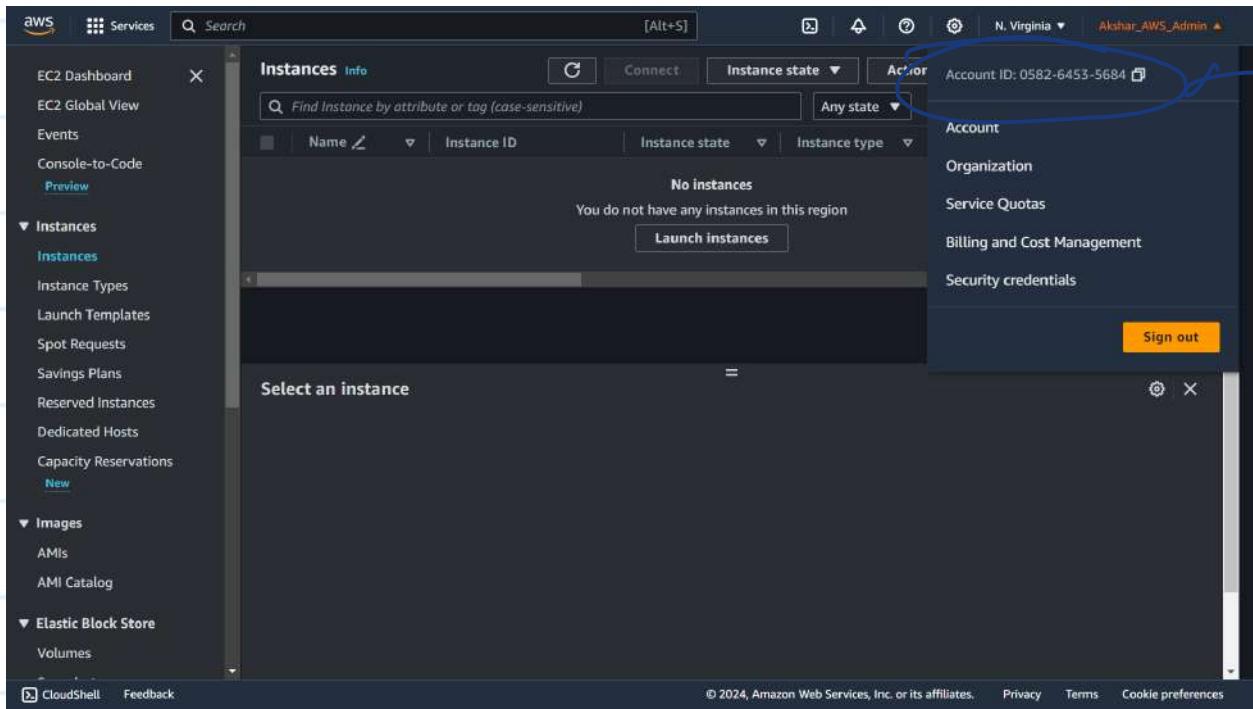
till now we have been accessing main AWS console
through our own email (with which AWS account was
(created)) therefore we are known as root user
but we can have other developers in our team
that will use the same AWS console for development
and other tasks

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 Services console with the sidebar open, displaying various service categories like Blockchain, Business Applications, Cloud Financial Management, Compute, Containers, Customer Enablement, Database, Developer Tools, End User Computing, Front-end Web & Mobile, Game Development, Internet of Things, Machine Learning, Management & Governance, Media Services, Migration & Transfer, and Networking & Content Delivery. In the center, under 'Recently visited', the IAM service is highlighted with a yellow star and a callout bubble that says 'Manage access to AWS resources'. Other recently visited services include EC2, Simple Notification Service, and CloudWatch.

first we add a user

The screenshot shows the IAM Dashboard. On the left, the navigation menu includes 'Identity and Access Management (IAM)', 'Dashboard', 'Access management' (with 'Users' circled in blue), 'Policies', 'Identity providers', and 'Account settings'. Under 'Access reports', it lists 'Access Analyzer', 'External access', 'Unused access', 'Analyzer settings', 'Credential report', and 'Organization activity'. The main dashboard area has sections for 'Security recommendations' (warning about root user MFA) and 'IAM resources' (listing 0 User groups, 0 Users, 4 Roles, 0 Policies, and 0 Identity providers). A 'What's new' section at the bottom indicates updates for features in 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 is titled 'Users (0) Info' and contains a table header with columns: User name, Path, Group, Last activity, MFA, and Permissions. A large blue circle highlights the 'Create user' button at the top right of the table area. The status bar at the bottom indicates 'No resources to display'.

Create
User

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 panel is titled 'Specify user details' and contains a 'User details' section. A large blue circle highlights the 'User name' input field, which contains the value 'Temp_User1'. Below the input field is a note: 'Type user name can have up to 64 characters. Valid characters: A-Z, a-z, 0-9, and + = . @ _ - (hyphen)'. There is also an optional checkbox for 'Provide user access to the AWS Management Console - optional'. A callout bubble points to a note: 'If you are creating programmatic access through access keys or service-specific credentials for AWS CodeCommit or Amazon Keypairs, you can generate them after you create this IAM user.' At the bottom are 'Cancel' and 'Next' buttons.

Name
of user
rends

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

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 Keypairs, 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 Keypairs, 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

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

individually
attaching
policy
to a single
User.

Permissions policies (1180)

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

Filter by Type: All types

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
AlexaForBusinessGatew...	AWS managed	0
AlexaForBusinessLifes...	AWS managed	0
AlexaForBusinessNetw...	AWS managed	0
AlexaForBusinessPoly...	AWS managed	0

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

▶ Set permissions boundary - optional

Cancel Previous Next

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

Next

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

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

View 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
User name: Temp_User1
Console password: **** Show

Email sign-in instructions

Download .csv file

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

user will log in through

The screenshot shows the AWS sign-in interface. A blue circle highlights the "IAM user" option under "Sign in". Handwritten notes on the left side of the screen read: "the user will sign in from here." Below the sign-in form, there is a "New to AWS?" link.

MACHINE LEARNING
Explore AWS AI Services
 Easily add intelligence to your applications. No machine learning skills required
 Find out how >

Diagram illustrating a neural network architecture with input layers, hidden layers, and an output layer.

the user will sign in from here.

Create policy Groups (set of permissions)

The screenshot shows the AWS IAM "User groups" page. A blue circle highlights the "Create group" button. Handwritten notes on the right side of the screen read: "Create group".

Identity and Access Management (IAM)

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.

Group name	Users	Permissions	Creation time
No resources to display			

Create group

User group name
Enter a meaningful name to identify this group.
Policy_Group_1

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
AlexaForBusinessFullAccess	AWS managed	None	Provide device setup access to A
AlexaForBusinessFullAccess	AWS managed	None	Grants full access to AlexaForBu

Add users to group

Identity and Access Management (IAM)

User groups

Users

Roles

Policies

Identity providers

Account settings

Access reports

Access Analyzer

External access

Unused access

Analyzer settings

Credential report

Organization activity

CloudShell Feedback

Identity and Access Management (IAM)

User groups

Users

Roles

Policies

Identity providers

Account settings

Access reports

Access Analyzer

External access

Unused access

Analyzer settings

Credential report

Organization activity

CloudShell Feedback

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 permissions
AdministratorAccess	AWS managed	None	Grants account administrative permissions
AlexaForBusinessFullAccess	AWS managed	None	Provides device setup access to AlexaForBusiness
AlexaForBusinessFullAccess	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 user group 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, 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 (4) Info" and contains a table with four rows:

Role name	Trusted entities
AWSServiceRoleForAutoScaling	AWS Service: autoscaling (Service)
AWSServiceRoleForElasticLoadBalancing	AWS Service: elasticloadbalanc
AWSServiceRoleForSupport	AWS Service: support (Service-L
AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Se

Below the table, 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" (using 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

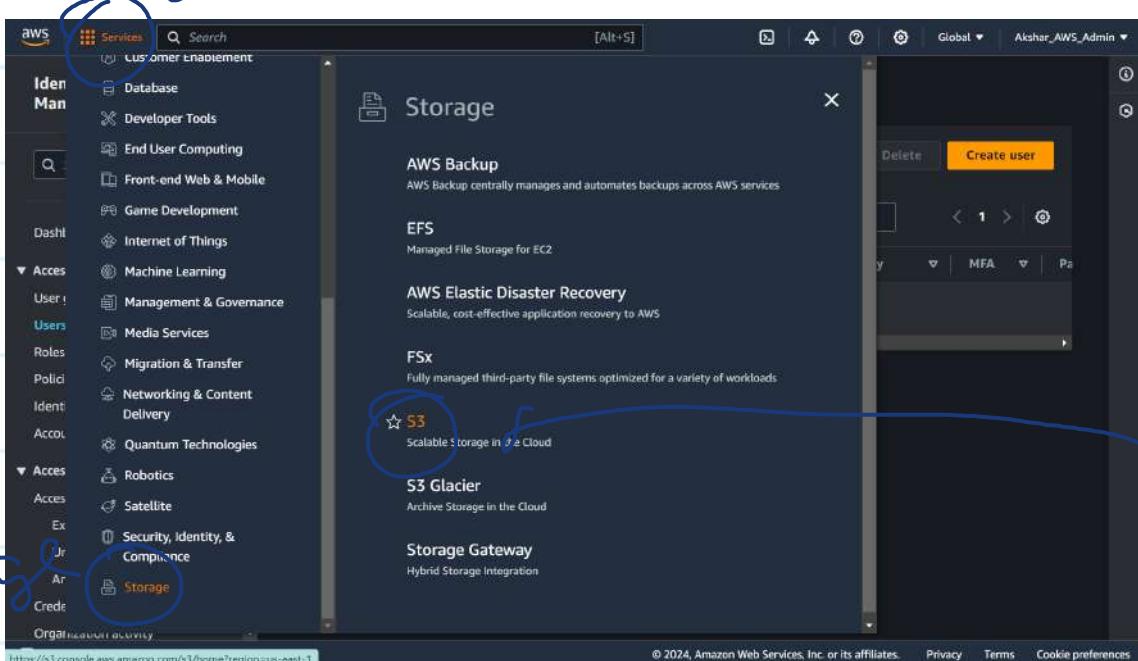
Another AWS Service

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 Amazon S3 service page. At the top right, there is a 'Create a bucket' button highlighted with a blue circle and a handwritten note 'create bucket' above it. Below the main content area, there is a 'Pricing' section with a note about no minimum fees and a link to the AWS Simple Monthly Calculator.

This screenshot shows the 'Create bucket' configuration page. A large blue oval highlights the 'AWS Region' dropdown, which is set to 'US East (N. Virginia) us-east-1'. Above the dropdown, the word 'Global' is circled with a handwritten note 'Global region'. To the right of the dropdown, the word 'specific region' is written next to a circled 'Subregion' dropdown. Below the region selection, a 'Bucket name' field contains 'MySamplebucket', with a handwritten note 'Name your bucket' and 'unique in a subregion' written vertically to its right. Other sections visible include 'General configuration', 'Bucket type', 'Object Ownership', and 'Copy settings from existing bucket - optional'.

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

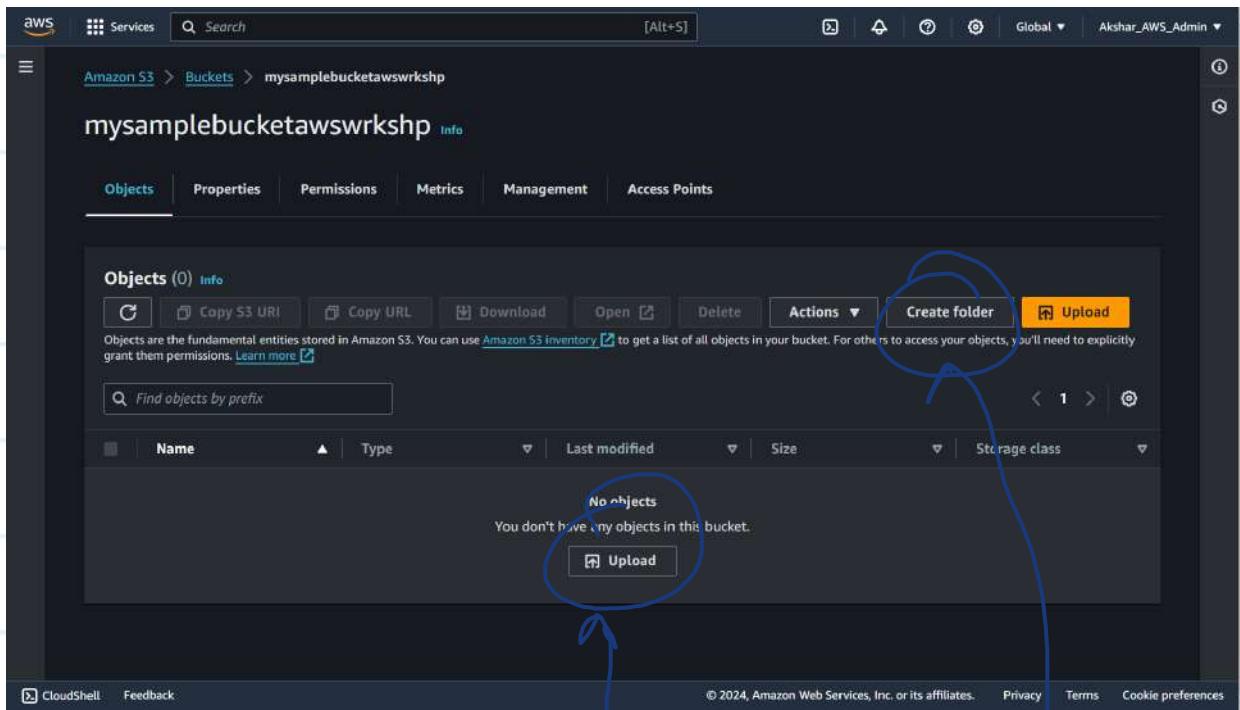
The screenshot shows the 'Encryption type' section of the 'Create bucket' wizard. It includes three options: 'Server-side encryption with Amazon S3 managed keys (SSE-S3)' (selected), 'Server-side encryption with AWS Key Management Service keys (SSE-KMS)', and 'Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)'. A note below explains DSSE-KMS: 'Secure your objects with two separate layers of encryption. For details on pricing, see SSE-KMS pricing on the Storage tab of the Amazon S3 pricing page.' A blue callout points from the handwritten note 'disabled bucket key' to the 'SSE-KMS' option. At the bottom right of the wizard is a yellow 'Create bucket' button.

disabled
bucket key

Create bucket

The screenshot shows the 'General purpose buckets' section of the 'Buckets' page. It lists one bucket named 'nysamplebucketawsrwrkshp'. The table columns are Name, AWS Region, Access, and Creation date. The bucket details are: Name - nysamplebucketawsrwrkshp, AWS Region - US East (N. Virginia) us-east-1, Access - Bucket and objects not public, Creation date - March 15, 2024, 17:12:12 (UTC+05:30). A blue callout points from the handwritten note 'click to go in the bucket access' to the 'Access' column of the table.

click to go in the bucket access



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

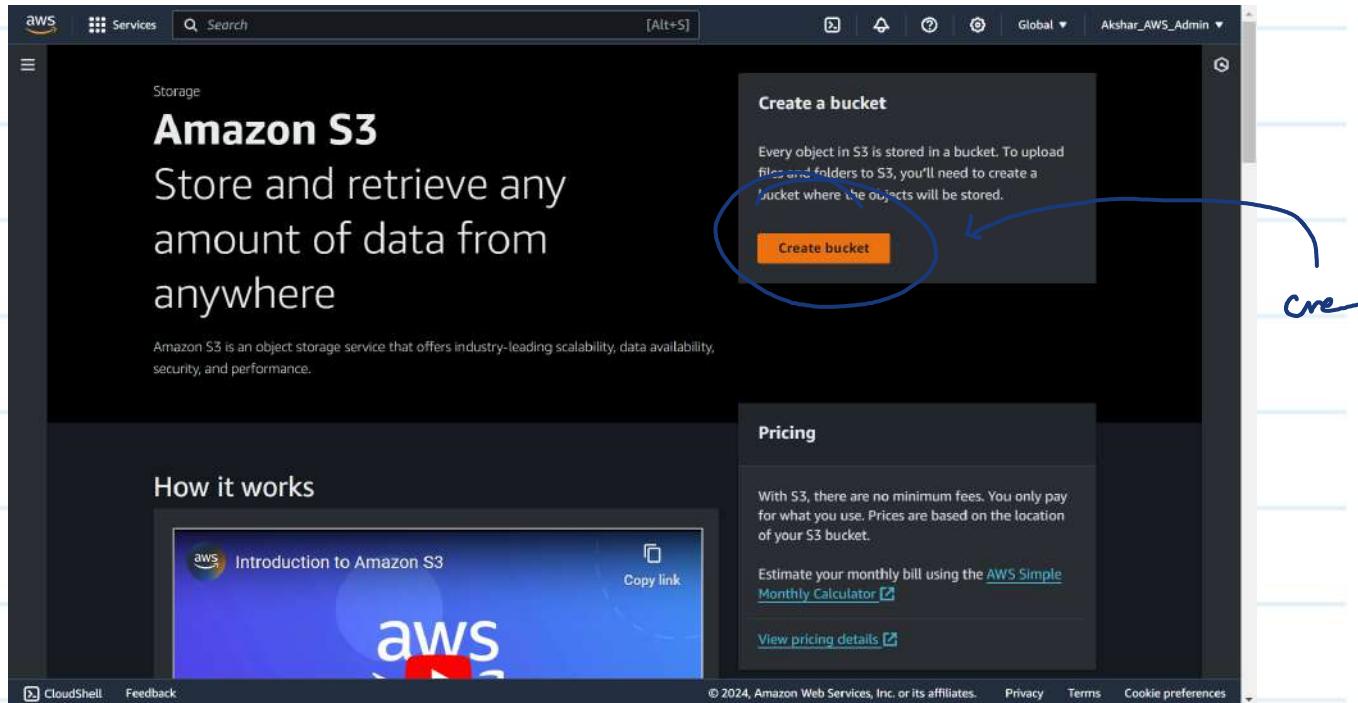
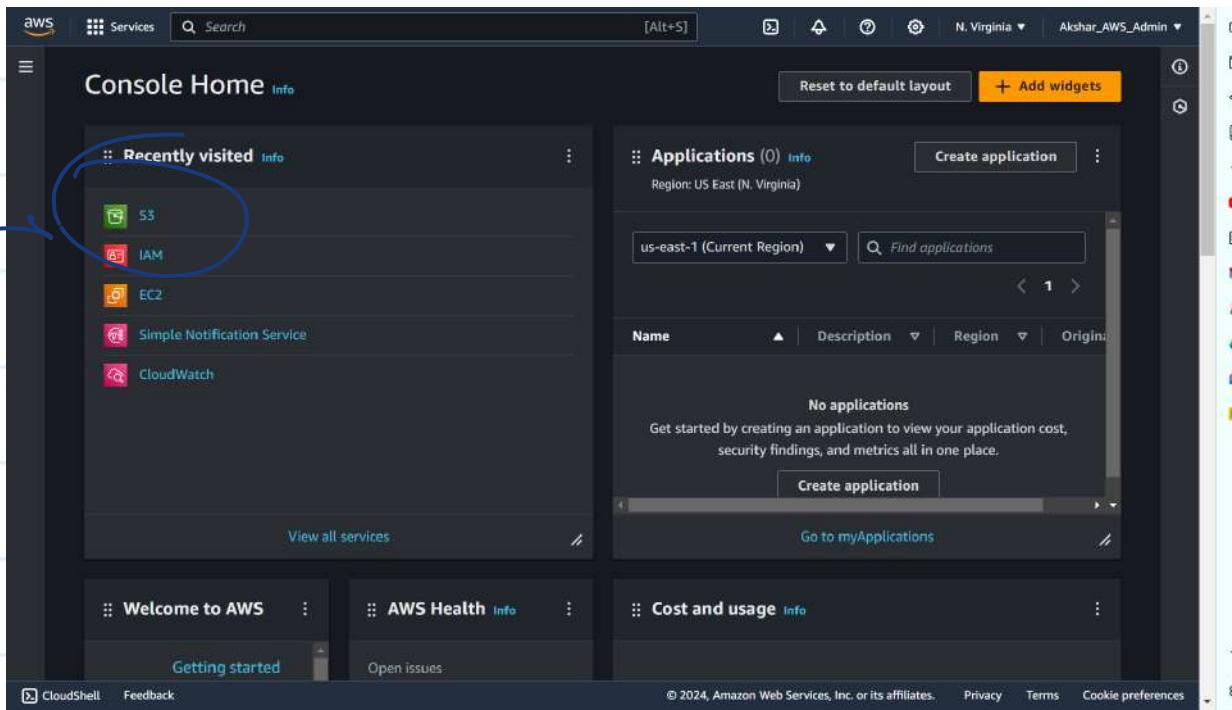
charges are applied to

- 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.



General configuration

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

Bucket name: AWSwrkshop_S3_exp

Object Ownership:

- ACLs disabled (recommended)
- ACLs enabled

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choose region and name

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

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.

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.

If you want to enforce object ownership for new objects only, your bucket policy must specify that the bucket-owner-full-control canned ACL is required for object uploads. [Learn more](#)

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.

Warning: 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 application failures.

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

Enable

Tags - optional (0)

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

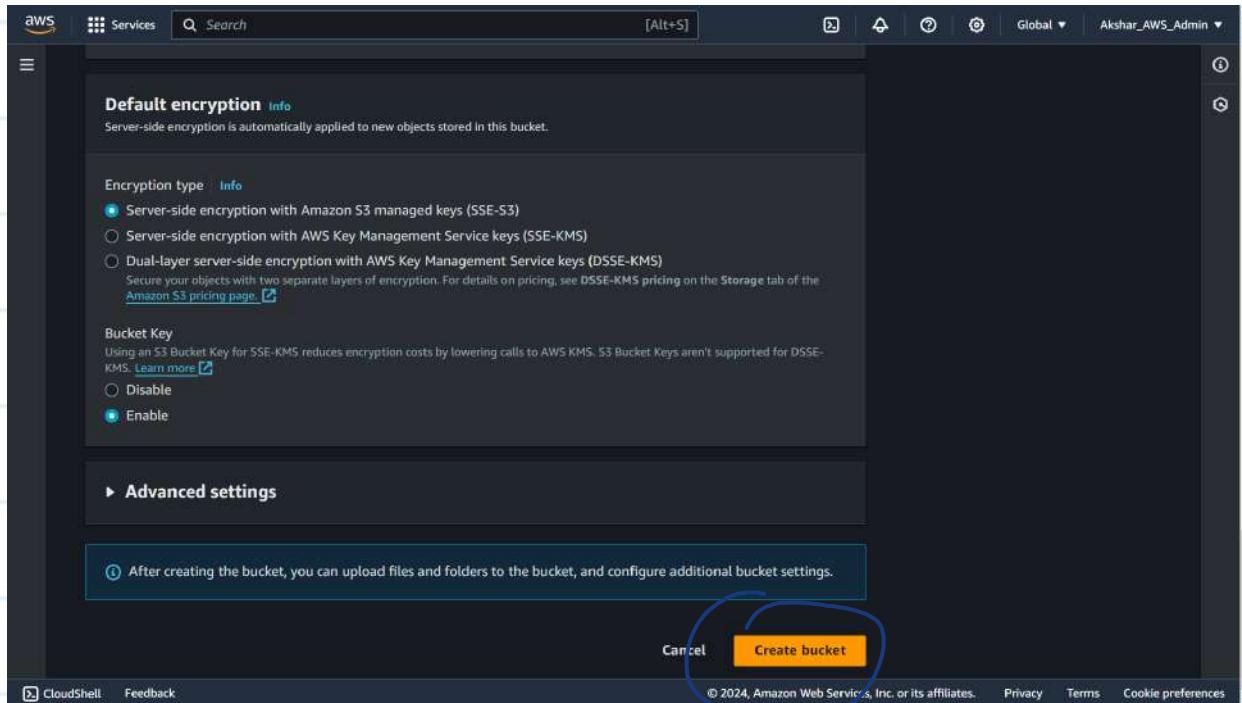
No tags associated with this bucket.

Add tag

Default encryption Info

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

file
Versioning
and
Other
benefits
disabled
for now



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.				
C Copy ARN Empty Delete Create bucket				
Find buckets by name				
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

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](#)

Name	Type	Last modified	Size	Storage class
No objects				
You don't have any objects in this bucket.				
Upload				

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upload file

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.

Name	Folder	Type
index.html		text/html

[Remove](#) [Add files](#) [Add folder](#)

Destination [Info](#)

Destination
`s3://awsrkshps3exp`

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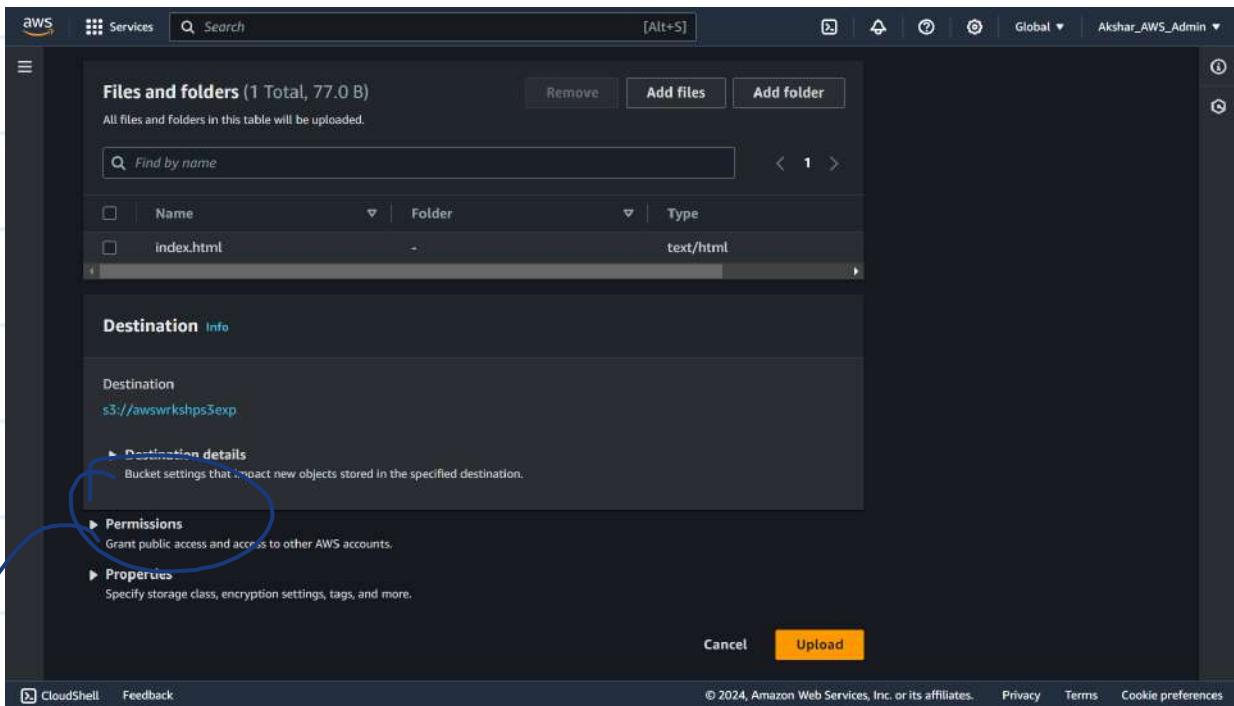
Sample file

bucket url

every file and dict in bucket
also has such url endpoint

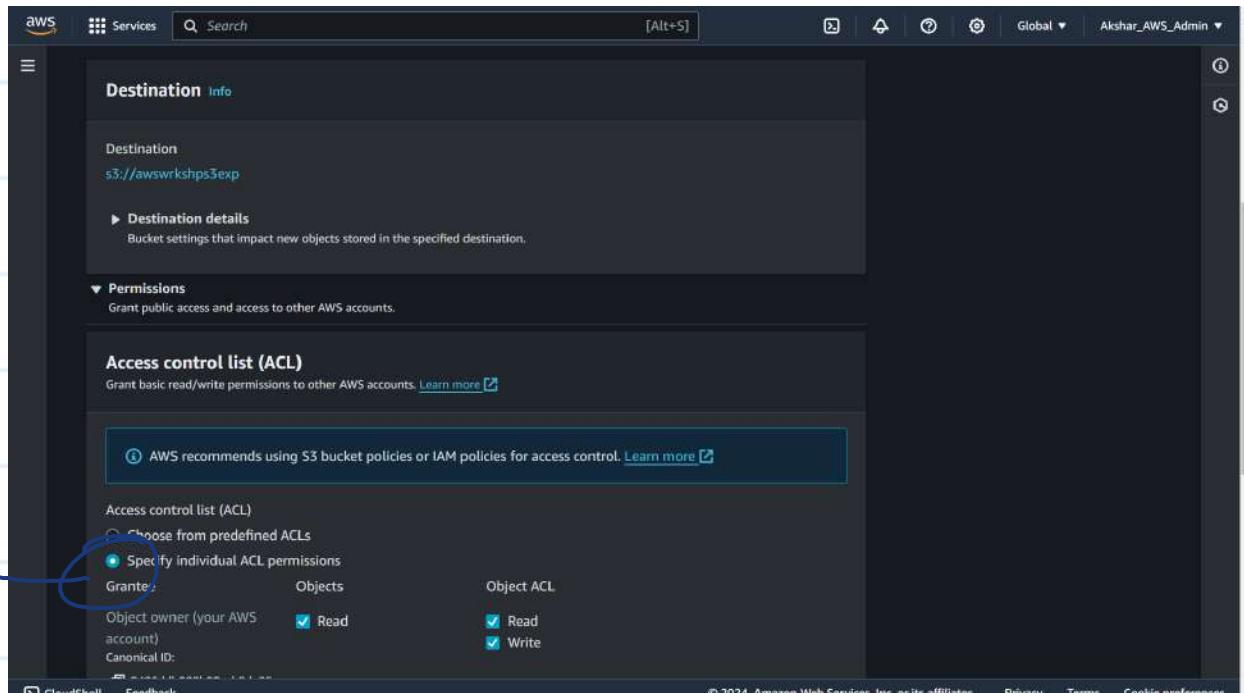
Add sample file

but currently only private access
allowed to make it public,



Permissions

Choose
this



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"/> 84264d988b02ecb8da25 ed5e181a35b1d5d9fd5ef0bd c7df4158438fb9	
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 checked="" 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/AuthenticatedUsers>

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

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
<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

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

Actions ▾ Calculate total size Move Initiate restore Query with S3 Select Edit actions Rename object Edit storage class 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
<input checked="" type="radio"/> Standard	Frequently accessed data (more than once a month) with milliseconds access	≥ 3	-
<input type="radio"/> Intelligent-Tiering	Data with changing or unknown access patterns	≥ 3	-
<input type="radio"/> Standard-IA	Infrequently accessed data (once a month) with milliseconds access	≥ 3	30 days
<input type="radio"/> One Zone-IA	Recreatable, infrequently accessed data (once a month) stored in a single Availability Zone with milliseconds access	1	30 days
<input type="radio"/> Glacier Instant Retrieval	Long-lived archive data accessed once a quarter with instant retrieval in milliseconds	≥ 3	90 days
<input type="radio"/> 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

Glacier Instant Retrieval

Glacier Flexible Retrieval (formerly Glacier)

Glacier Deep Archive

Reduced redundancy

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

click here
to go to object specifications

index.html - Object in S3 bucket

index.html Info

Properties Permissions Versions

Object overview

Owner: 8426ddb988b02ecb8da25eda07e81a35b1d58dafd5ef0bd67dfd4158438feb9

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

Last modified: March 16, 2024, 10:25:48 (UTC+05:30)

Size: 77.0 B

S3 URI: s3://awswrkshps3exp/index.html

Amazon Resource Name (ARN): arn:aws:s3:::awswrkshps3exp/index.html

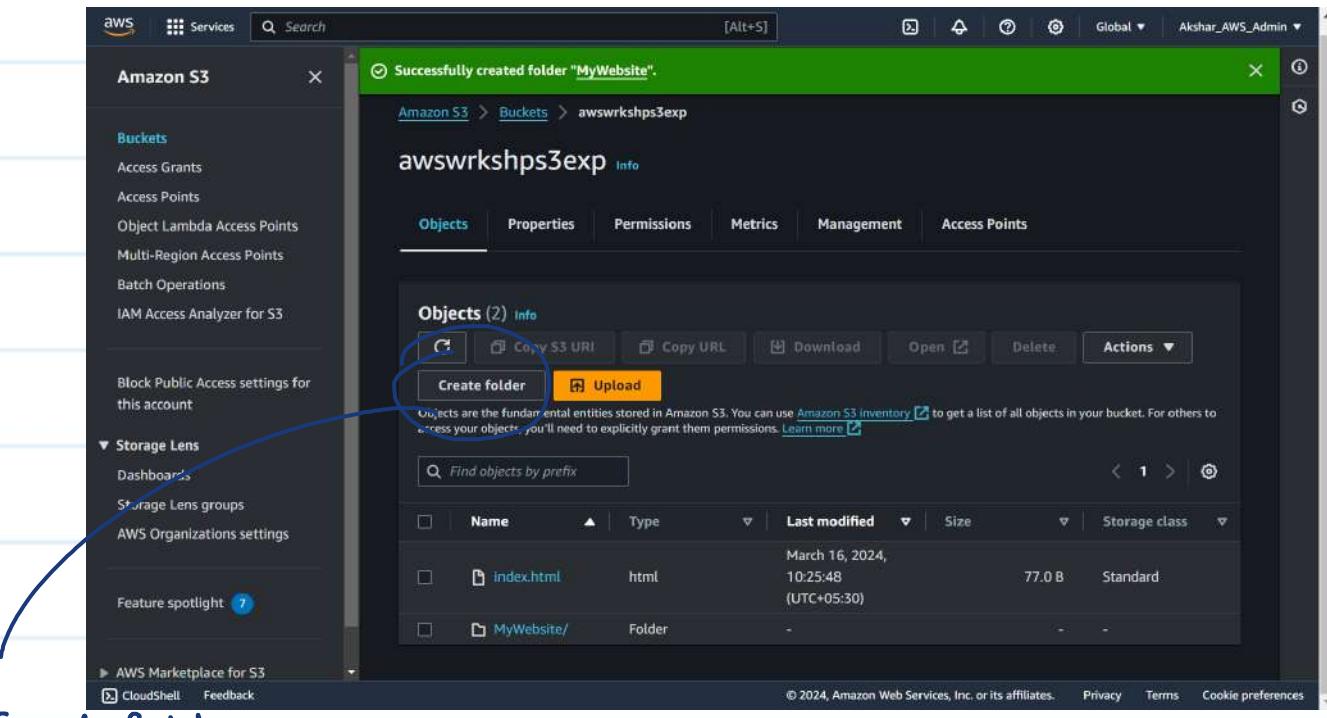
Entity tag (etag): 4f7a2df6fcfd57d30114c685c563776

Object URL: <https://awswrkshps3exp.s3.ap-south-1.amazonaws.com/index.html>

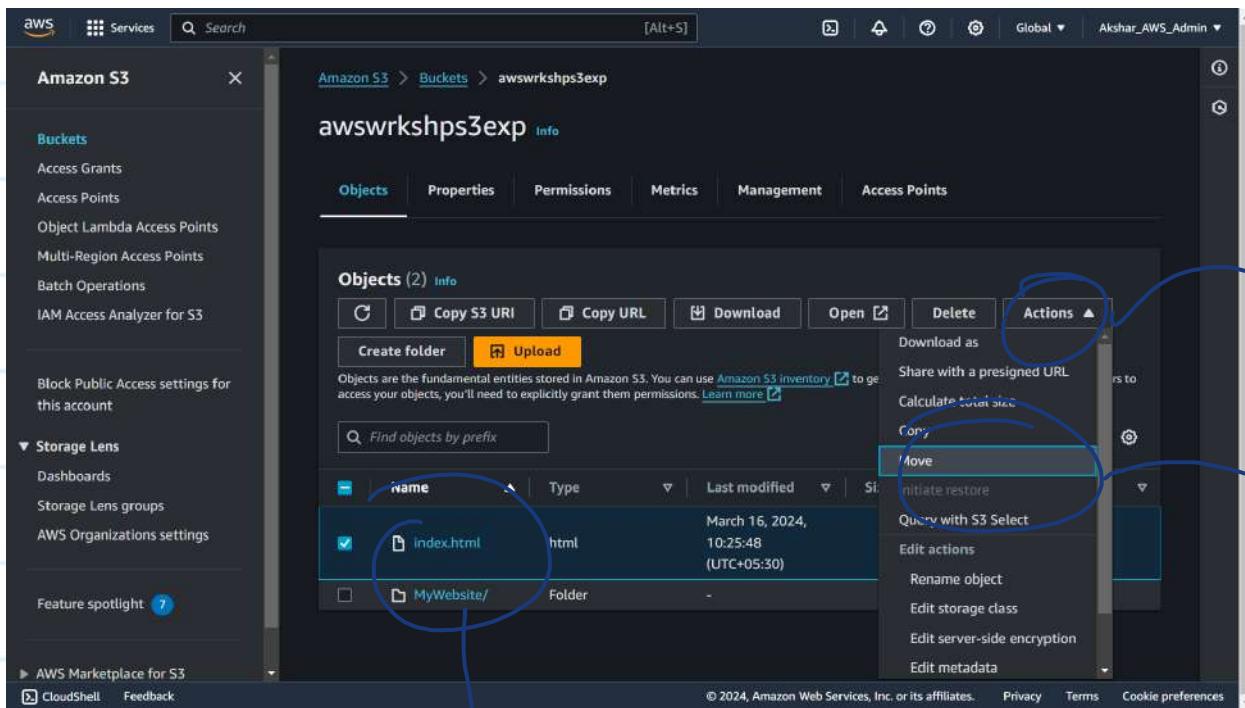
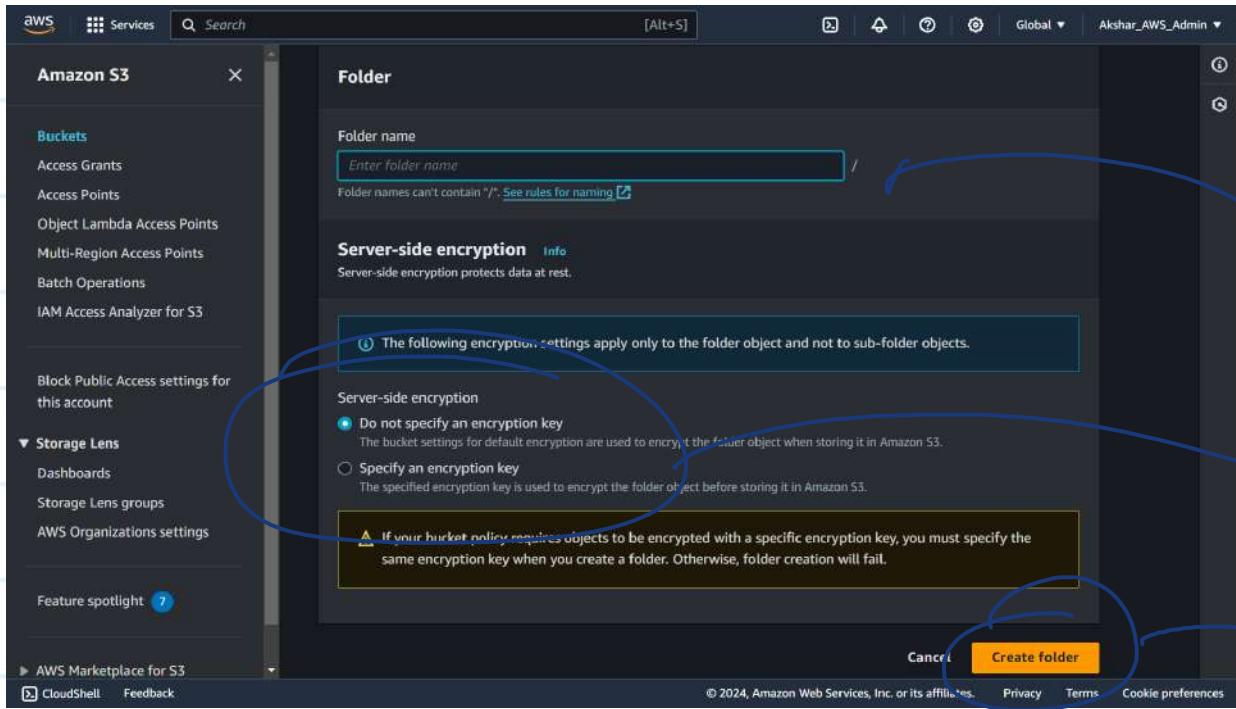
Here you will
see access
URL try accessing
it publicly

(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



Create folder



1 select file

If 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/>

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

If the source 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

Cancel Choose destination

Destination details

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

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

choose dest

The screenshot shows the AWS S3 'Specified objects' page. A modal dialog is open for the file 'index.html'. The dialog has a title bar with 'Move' and 'Cancel' buttons. Below the title bar, there are two radio button options under 'Additional checksums': 'Copy existing checksum functions' (selected) and 'Replace with a new checksum function'. Handwritten notes include 'Move' circled around the 'Move' button and 'Scro l1 doc down' in the top right corner.

Scro l1
doc down

Move

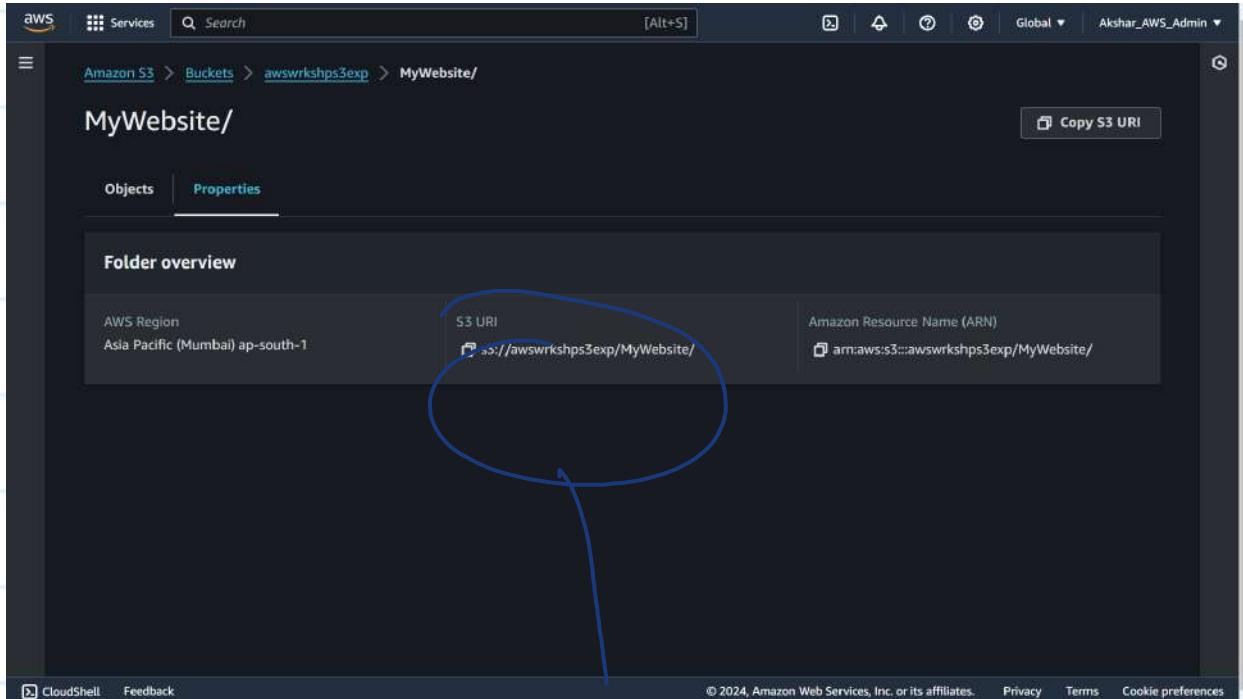
The screenshot shows the AWS S3 'Buckets' page for the bucket 'awswrkshps3exp'. The 'Objects' tab is selected. It displays one object, 'MyWebsite/'. Handwritten notes include a large circle around the folder name 'MyWebsite/' and an arrow pointing from the bottom left towards it.

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 accessible

Go back to buckets



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](#)

Name	Type	Last modified	Size	Storage class
MyWebsite/	Folder			

Select your bucket you want your website hosted from.

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

Buckets are containers for data stored in S3.

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

Properties | Objects | Permissions | 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](#)

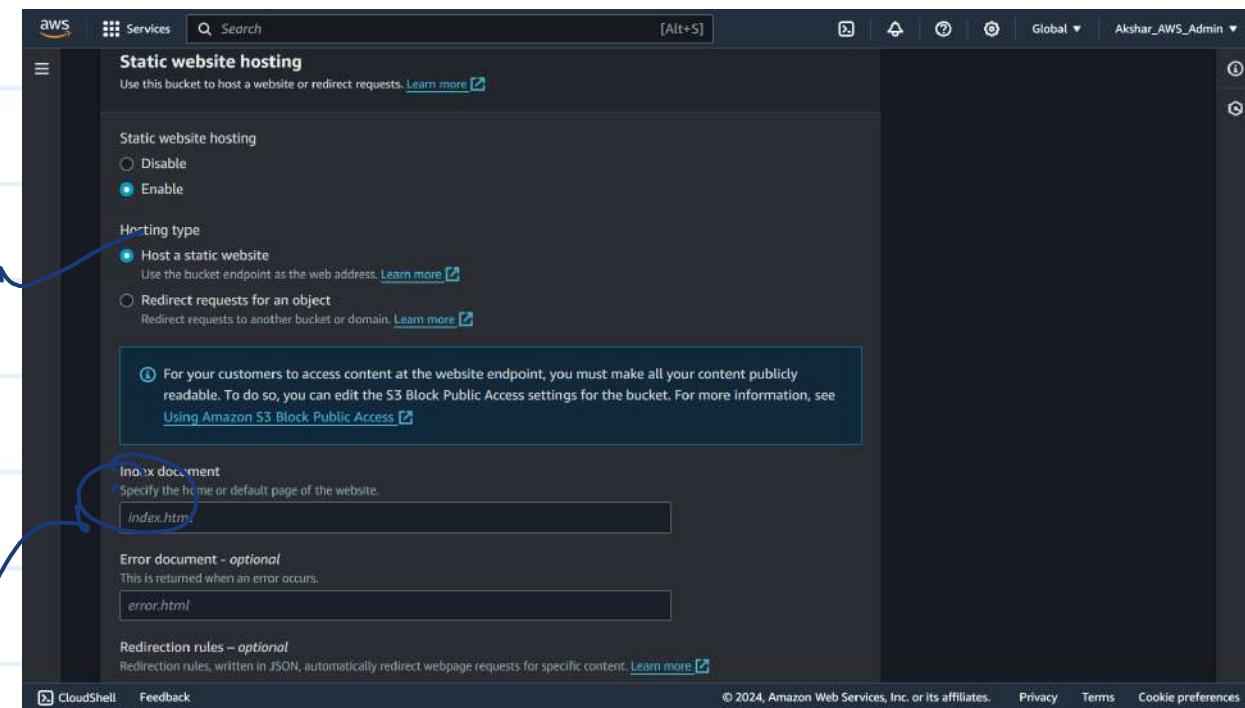
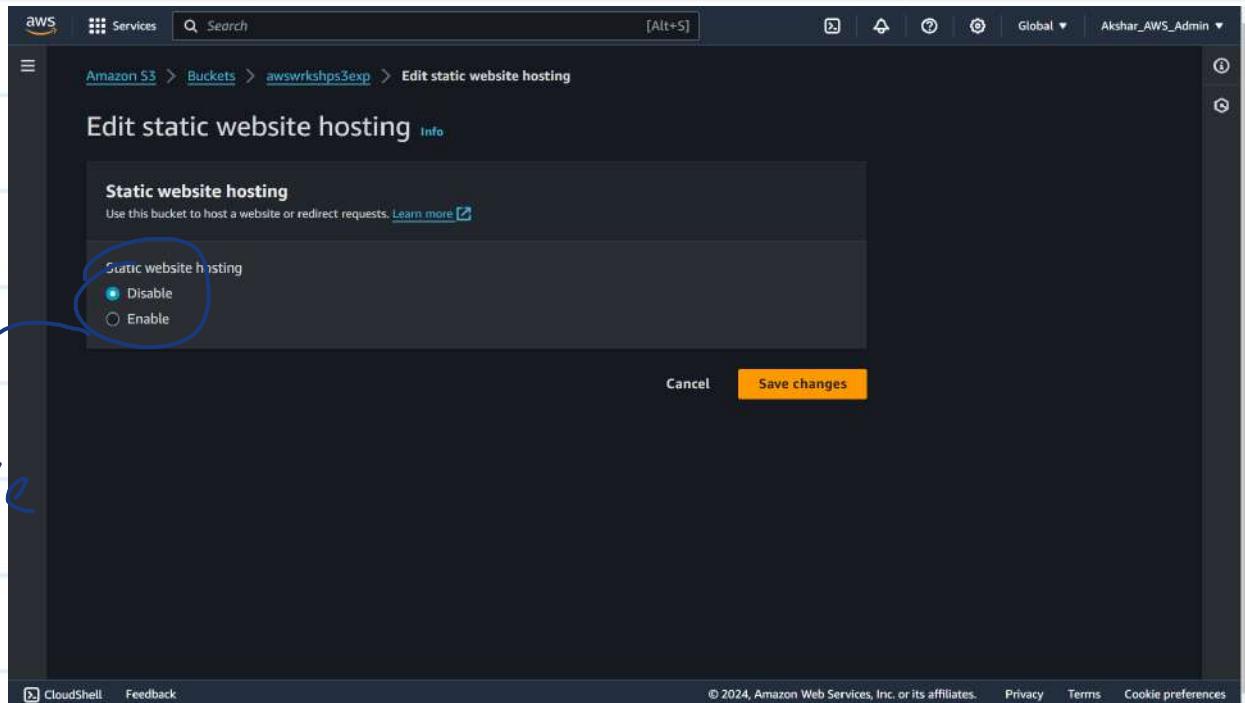
Requester pays Disabled

Static website hosting Edit

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

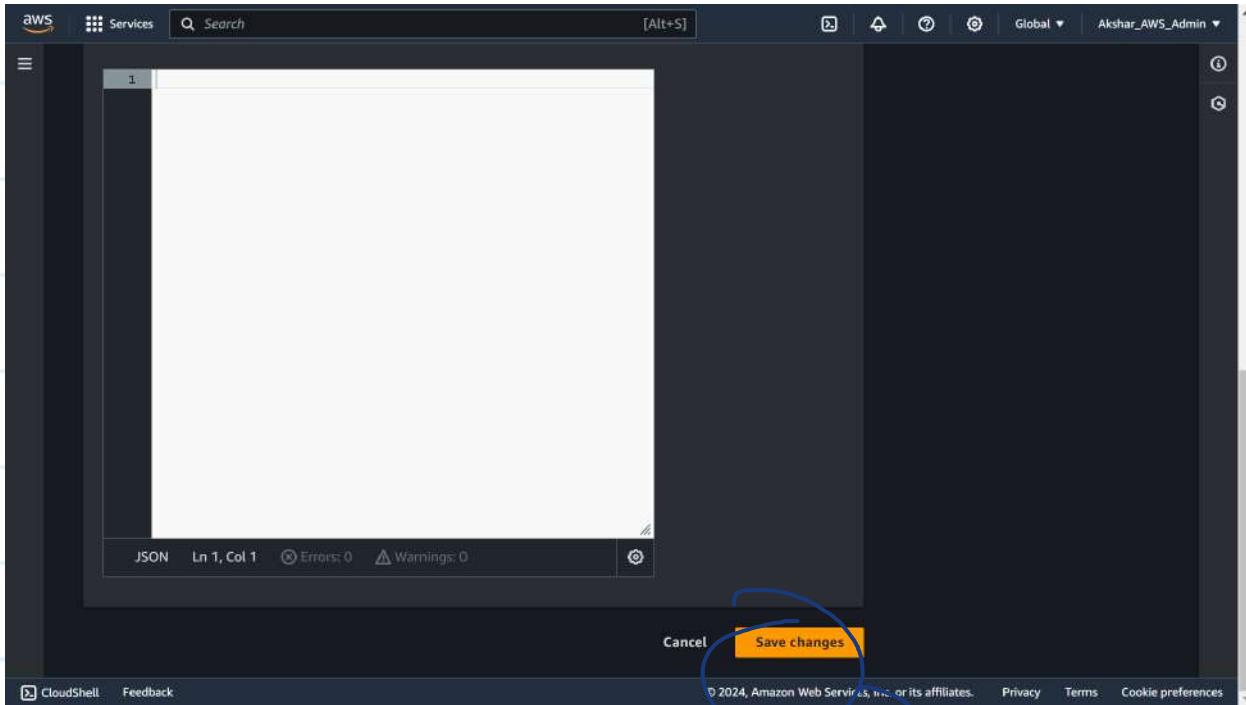
Static website hosting Disabled

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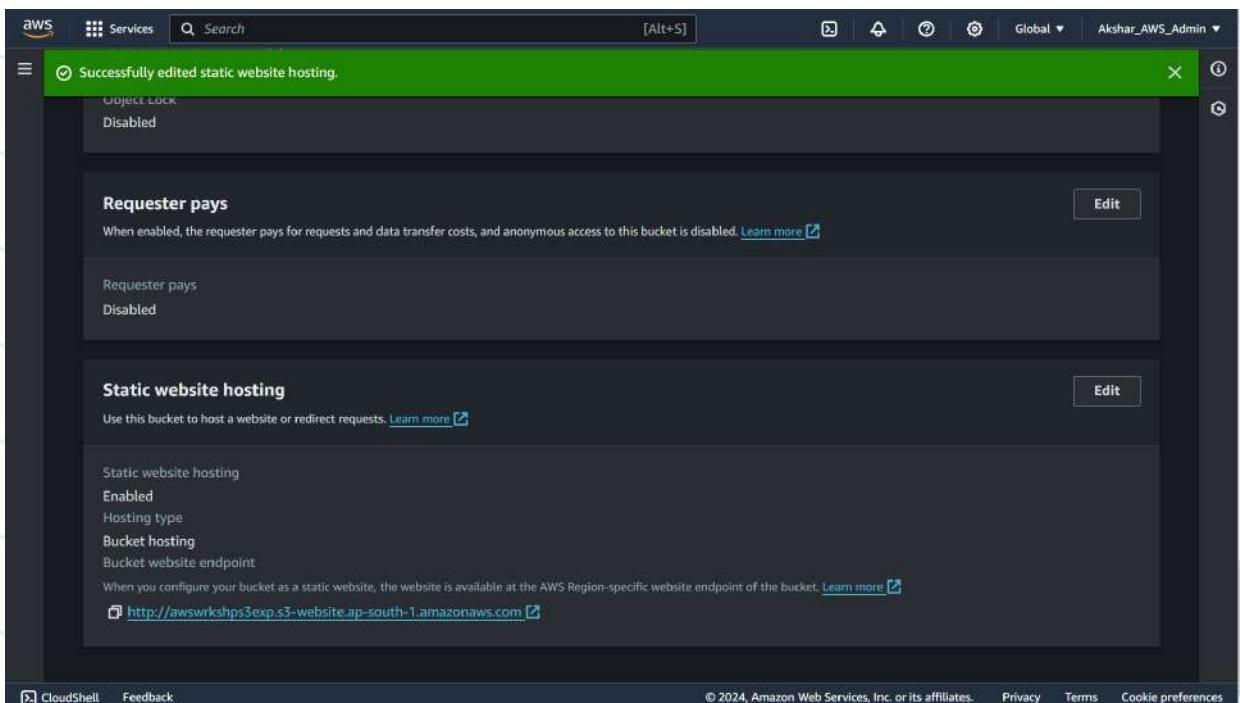
index.html or your index document

Scrolldown



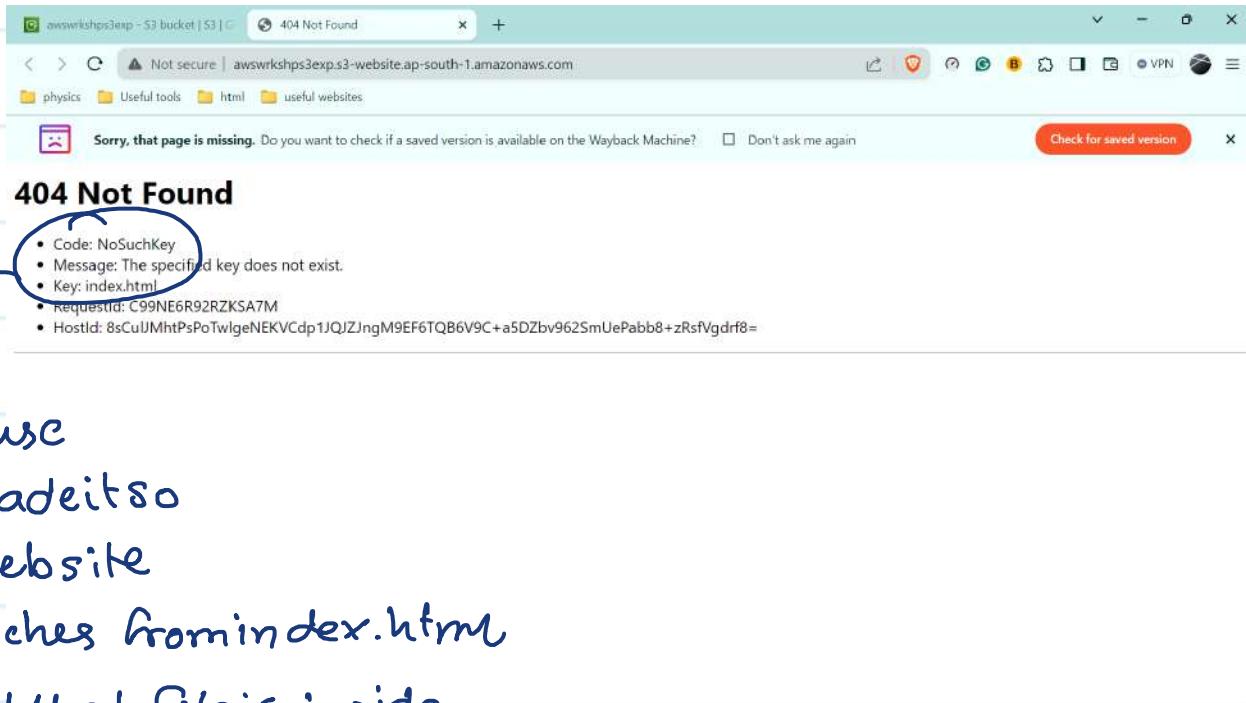
Save changes

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



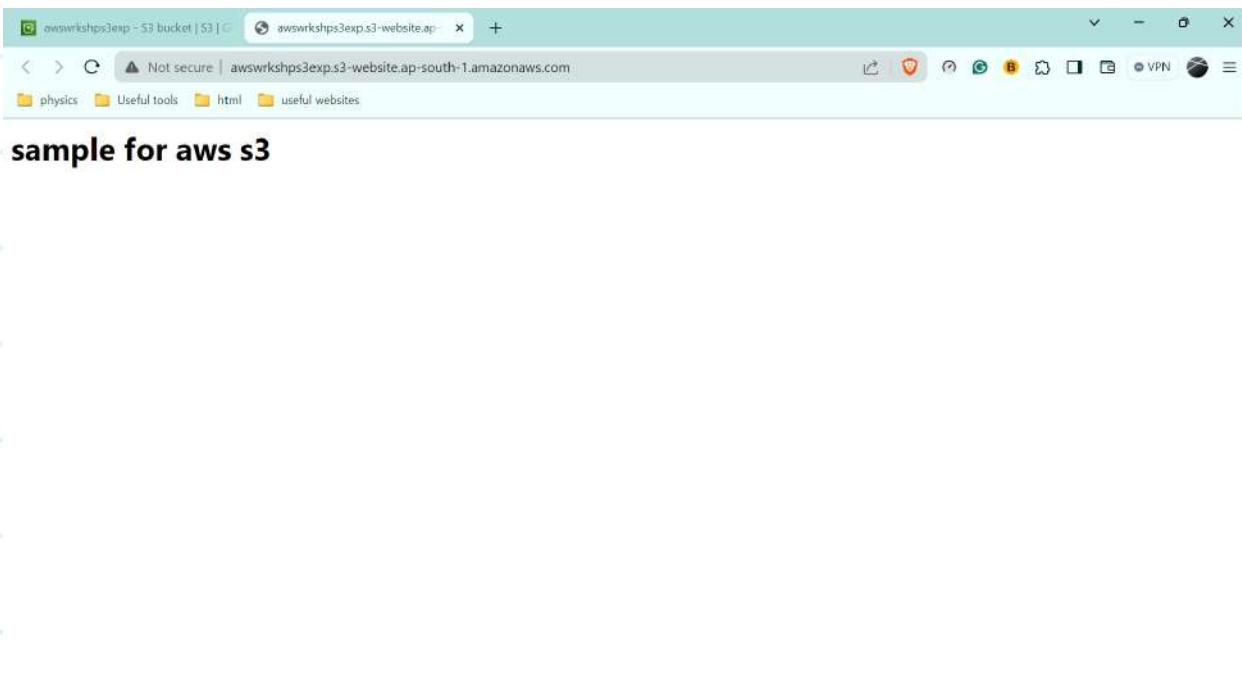
But it showed access denied as we have not made bucket access public

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 AWS Management Console. The 'General configuration' tab is selected, displaying fields for 'Bucket name' (awswrks3awsbucketversioning) and 'AWS Region' (Asia Pacific (Mumbai) ap-south-1). The 'Object Ownership' tab is also visible, showing the 'ACLs disabled (recommended)' option selected. A tooltip for this option states: 'All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.' A tooltip for the 'ACLs enabled' option states: 'Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.' A note at the bottom of the Object Ownership section says: '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.'

This screenshot is a zoomed-in view of the 'Object Ownership' section from the previous screenshot. It highlights the 'ACLs enabled' option with a blue circle and a callout arrow pointing to the text: 'Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.' A note below it says: '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.'

Acl
enabled

If you want to enforce object ownership for new objects only, your bucket policy must specify that the bucket-owner-full-control canned ACL is required for object uploads. [Learn more](#)

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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I acknowledge that the current settings might result in this bucket and the objects within becoming public.

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](#)

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Enable
Bucket versioning
scroll down
and createbucket

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

Encryption type:

- 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 (D SSE-KMS)
Secure your objects with two separate layers of encryption. For details on pricing, see SSE-KMS pricing on the Storage tab of the [Amazon KMS documentation](#).

Bucket Key
Amazon S3 selected key for SSE-KMS unless override by setting value to AWS-KMS. SSE-KMS keys aren't supported for SSE-S3.
[Learn more](#)

Disable
 Enable

Advanced settings

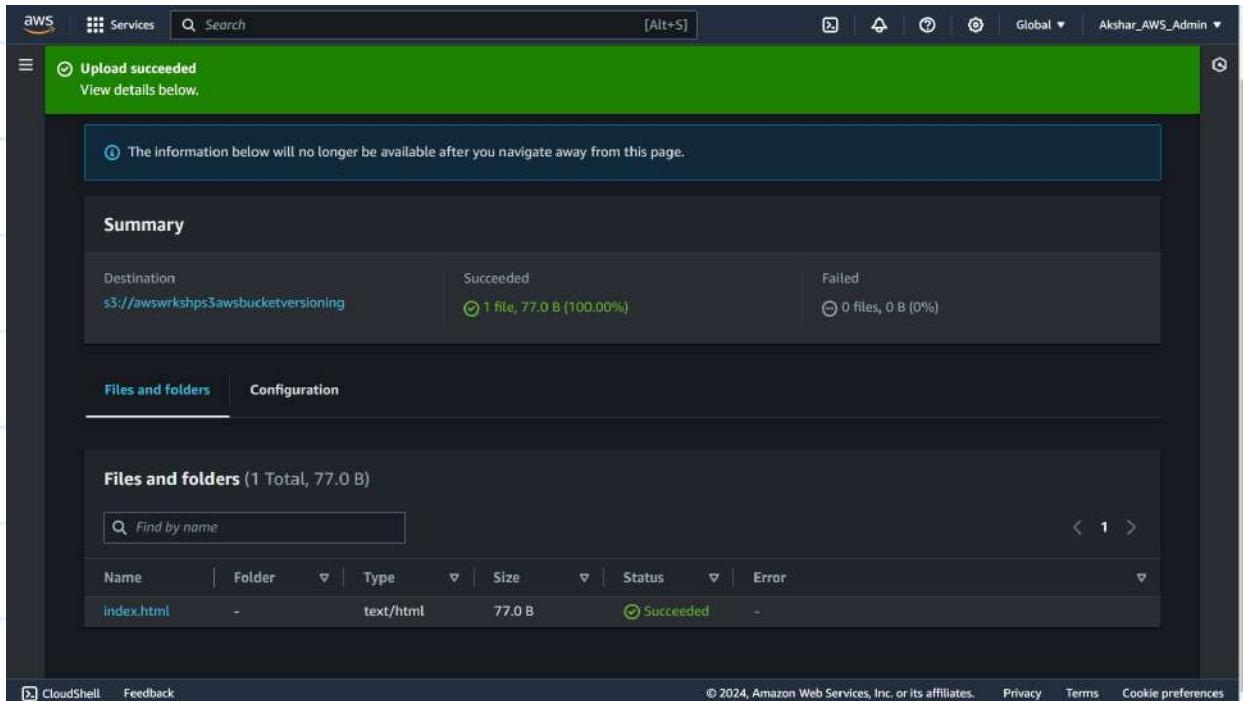
After creating the bucket, you can upload files and folders to the bucket, and configure additional bucket settings.

Create bucket

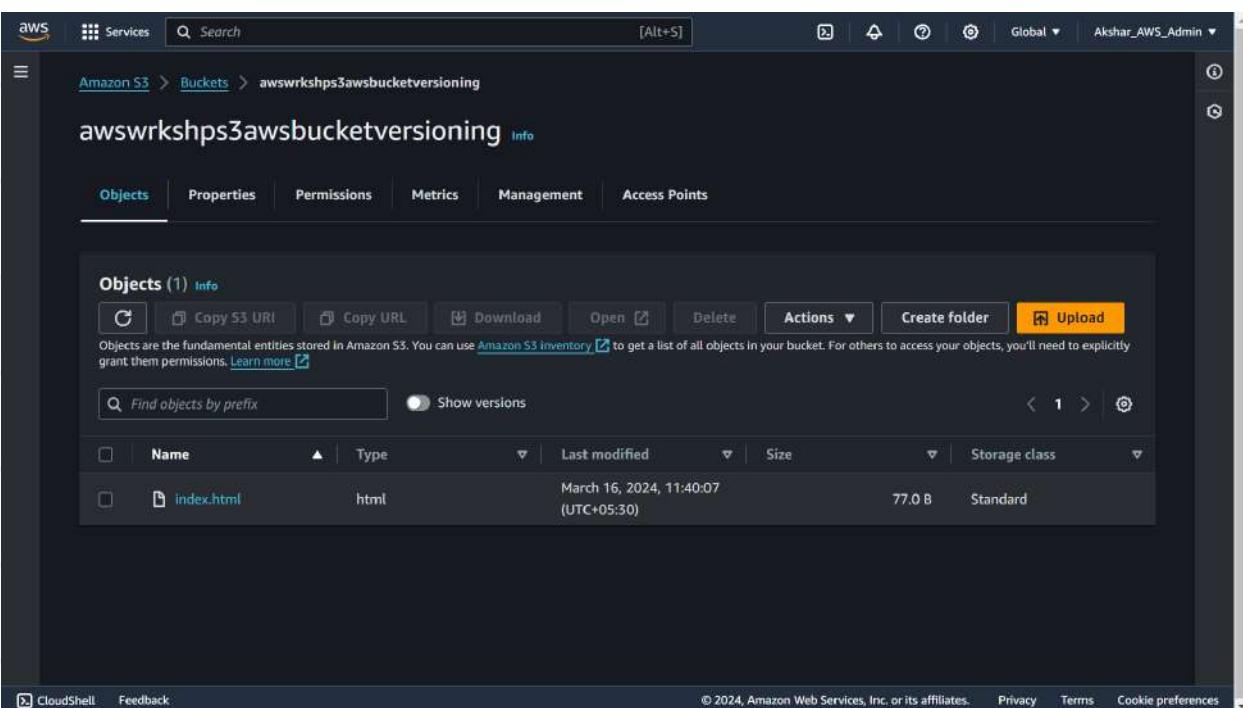
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create bucket

then upload a file again



The screenshot shows the AWS S3 console with a green success banner at the top stating "Upload succeeded". Below it, a summary table shows one file uploaded successfully (S3://awswrkshps3awsbucketversioning/index.html) and zero files failed. Under the "Files and folders" tab, a table lists the uploaded file "index.html" with details: Name (index.html), Type (text/html), Size (77.0 B), Status (Succeeded), and Error (none).



The screenshot shows the AWS S3 console with the path "Amazon S3 > Buckets > awswrkshps3awsbucketversioning". The "Objects" tab is selected, displaying a table of the uploaded file "index.html". The table includes columns for Actions, Name (index.html), Type (html), Last modified (March 16, 2024, 11:40:07 (UTC+05:30)), Size (77.0 B), and Storage class (Standard).

Now delete above file

awswrkshps3awsbucketversioning

Objects (0) 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](#)

Show versions

Name	Type	Last modified	Size	Storage class
No objects You don't have any objects in this bucket.				
<input type="button" value="Upload"/>				

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

awswrkshps3awsbucketversioning Info

Objects (2) 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](#)

Show versions

Name	Type	Version ID	Last modified	Size	Storage class
<input type="checkbox"/> index.html	html	mZLfq_DUU vtvn6Ehc.y2 FJkuCuuIqg TY	March 16, 2024, 11:41:47 (UTC+05:30)	0 B	-
<input type="checkbox"/> L index.html	html	O0cYJJL76F vCIWGGBH 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 deletemarker

To restore file just delete the delete marker

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

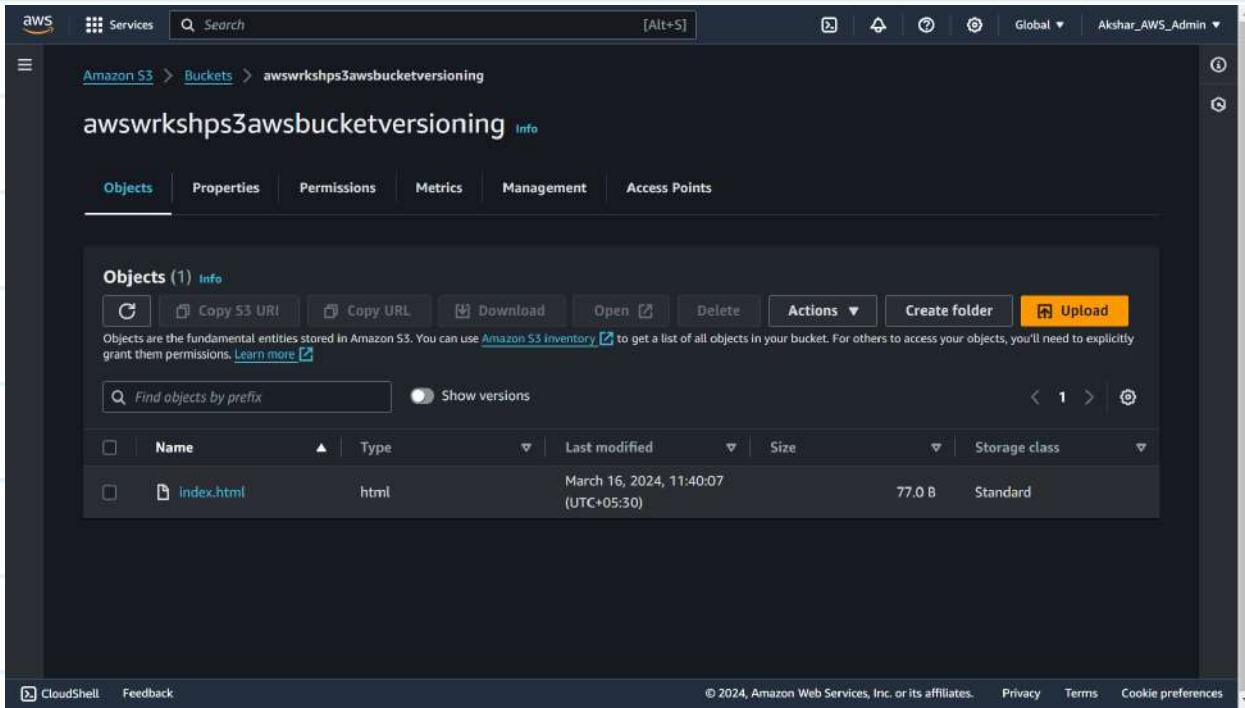
so when marker is removed ID is reassociated.

Name	Type	Version ID	Last modified	Size	Storage class
<input checked="" type="checkbox"/> index.html	Delete marker	mZLfq_DUU vtvn6EhcY2 FJkuCuuIqg TY	March 16, 2024, 11:41:47 (UTC+05:30)	0 B	-
<input type="checkbox"/> index.html	html	Q0cYJL76F vCIWGGBHp ID.iV1jZ7.H wu	March 16, 2024, 11:40:07 (UTC+05:30)	77.0 B	Standard

2 then
delete
it.

Select
1 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 > awsrukshps3awsbucketversioning' is shown. The main area is titled 'awsrukshps3awsbucketversioning' with a 'Info' link. A horizontal menu bar below the title includes 'Objects' (which is selected), 'Properties', 'Permissions', 'Metrics', 'Management', and 'Access Points'. Under the 'Objects' section, there's a sub-menu with 'Actions' (selected), 'Create folder', and 'Upload'. A message 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.' Below this, there's a search bar with 'Find objects by prefix' and a 'Show versions' button. A 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). The bottom of the screen shows standard AWS footer links: CloudShell, Feedback, © 2024, Amazon Web Services, Inc. or its affiliates., 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.

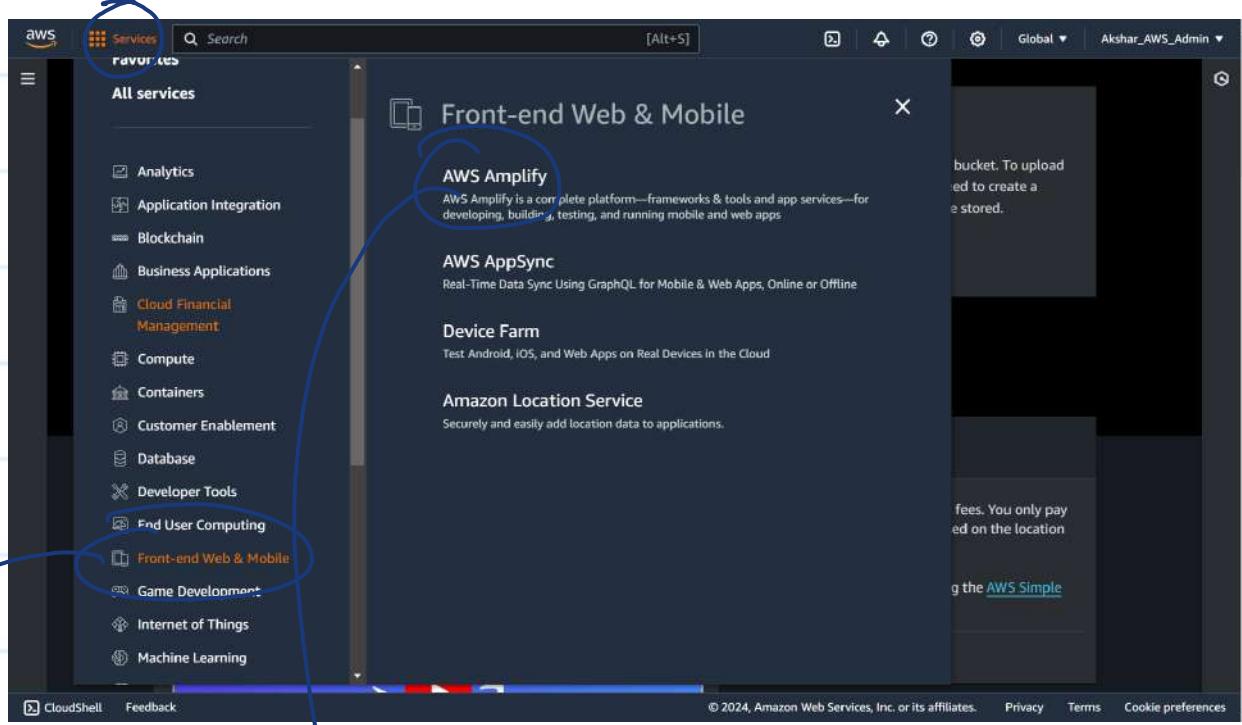
AWS managed service

Amplify

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

- first we need to have our react front end 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 Support

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](#) 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 Support

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.

Amplify Hosting

Host your web app

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

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

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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

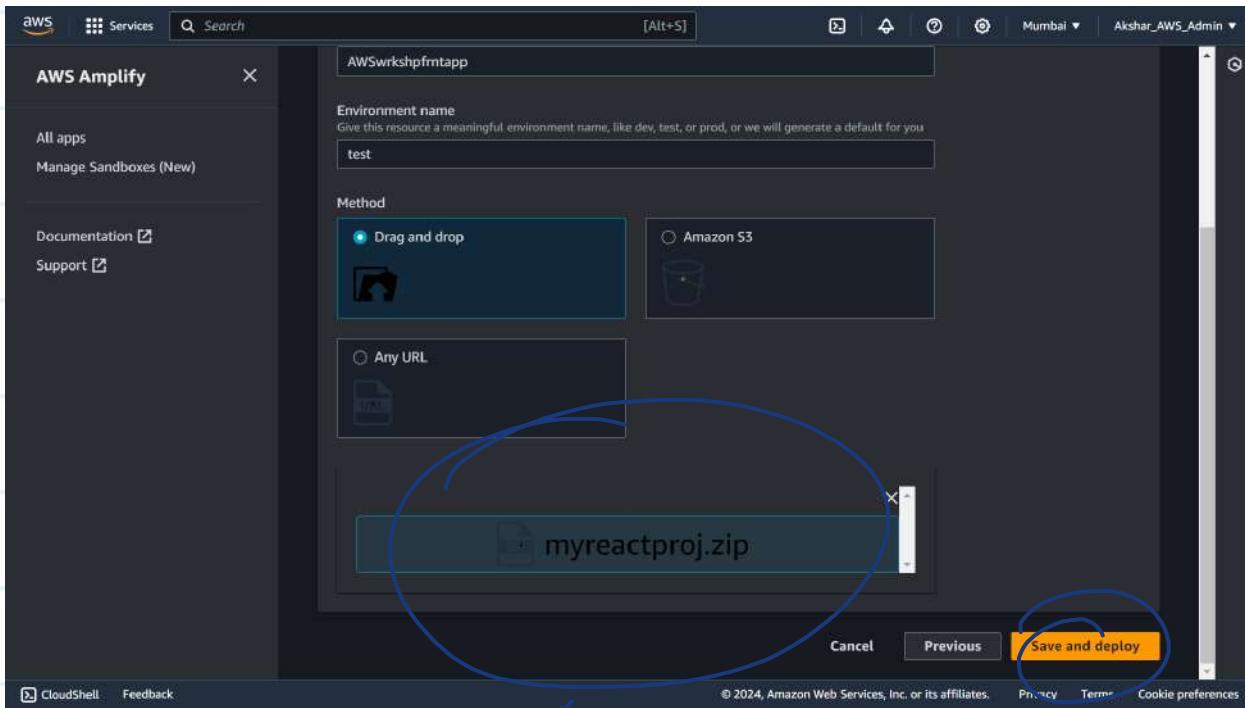
- Drag and drop
- Amazon S3
- Any URL

Continue

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fill these details

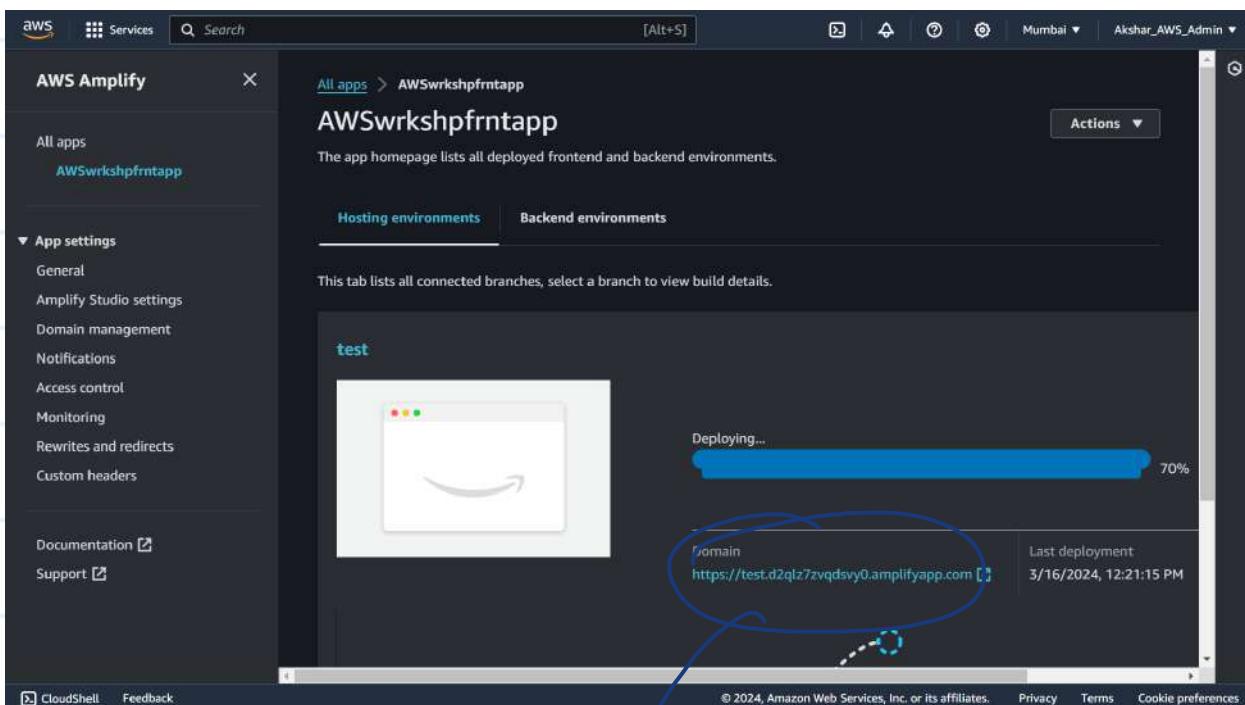
drag and drop your react build's zip here.



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 is a green progress bar. To the right, it shows the 'Domain' as <https://test.d2qlz7zvqdsy0.amplifyapp.com> and the 'Last deployment' time as 3/16/2024, 12:21:15 PM. At the bottom, there's a file upload section with a 'Choose files' button. The footer includes links for CloudShell, Feedback, and various AWS terms like Privacy, Terms, and Cookie preferences.

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 selected. Other visible services include Amazon DocumentDB, DynamoDB, ElastiCache, Amazon Keyspaces, Amazon MemoryDB for Redis, Neptune, and Amazon QLDB. A callout labeled '2 database' points to the 'Database' link in the sidebar. A callout labeled '1 In services' points to the 'Services' icon in the top navigation bar. A callout labeled '3 go to RDS' points to the 'RDS' link at the bottom of the list.

3 go to RDS

It is another managed service of AWS
just as amplify.

create
database

The screenshot shows the Amazon RDS dashboard with a prominent blue banner about Aurora I/O-Optimized. Below it, a callout labeled 'create database' points to the 'Create database' button in a modal window. The dashboard also displays resource statistics like DB Instances, Allocated storage, and Parameter groups.

The screenshot shows the 'Create database' page in the AWS RDS console. A blue arrow points from the handwritten note 'Stand by' to the 'Standard create' option under 'Choose a database creation method'. Another blue arrow points from the handwritten note 'MySQL' to the 'MySQL' engine type option under 'Engine options'.

Create database

Choose a database creation method

- Standard create: You set all of the configuration options, including ones for availability, security, backups, and maintenance.
- Easy create: Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Engine options

Engine type

- Aurora (MySQL Compatible)
- Aurora (PostgreSQL Compatible)
- MySQL
- MariaDB

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 'MySQL' engine details page in the AWS RDS console. A blue arrow points from the handwritten note 'Select version of MySQL' to the 'Engine Version' dropdown menu, which is set to 'MySQL 8.0.36'.

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.

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 side provides a detailed description of the Free tier template, listing its features such as support for database sizes up to 64 TiB and automated backups.

Select Free tier Template

The screenshot shows the continuation of the AWS RDS MySQL creation wizard. On the left, the 'DB instance identifier' field contains 'awswrkshpxpdb'. On the right, the 'MySQL' information panel is displayed, reiterating the MySQL engine's popularity and features. Handwritten notes on the right side of the screen provide numbered steps: 1. Name your Database, 2. Create master user, and 3. make it selfmanaged.

1 Name your Database

2 Create master user

3 make it selfmanaged

4 create password

Instance configuration

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

DB instance class

▼ 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

General Purpose SSD (gp2)

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2 vCPUs 1 GiB RAM Network: 2,085 Mbps

Storage

Storage type

General Purpose SSD (gp2)
Baseline performance determined by volume size

Allocated storage

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

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

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

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, 5 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.
default

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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.

choose yes to grant public Access

choose security group if no choose default

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 [Info](#)
 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 default port is 3306
for that we need a custom security group with port enabled
for that go to EC2 dashboard inside bar create
security group with above port enabled then add it above.

Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations [New](#)

▼ Images
AMIs
AMI Catalog

▼ Elastic Block Store
Volumes
Snapshots
Lifecycle Manager

▼ Network & Security
Security Groups [\(1\)](#) **ELASTIC IP**
Placement Groups
Key Pairs
Network Interfaces

▼ Load Balancing
Load Balancers
Target Groups

CloudShell Feedback

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.

[Launch instance](#) [Migrate a server](#)

Note: Your instances will launch in the Asia Pacific (Mumbai) Region

Service health
[AWS Health Dashboard](#) [G](#)

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

Instance alarms [View in CloudWatch](#)

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Inbound rules [Info](#)

Type	Info	Protocol	Port range	Info	Source	Info	Description - optional	Info
Custom TCP	Info	TCP	0	Info	Cu... ▼	<input type="text"/>	Description	Info
MySQL/Aurora	Info	TCP	3306	Info	A... ▼	<input type="text"/>	Description	Info
						<input type="text"/> 0.0.0.0/0 X		

[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. [X](#)

Outbound rules [Info](#)

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

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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

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.

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

Database authentication

- Password authentication
- Password and IAM database authentication
- Password and Kerberos authentication

Monitoring

Enable Enhanced Monitoring

Additional configuration

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

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Database options

Initial database name:

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

DB parameter group:

Option group:

Backup

Enable automated backups

Creates a point-in-time snapshot of your database.

MySQL

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DB parameter group:

Option group:

Backup

Enable automated backups

Creates a point-in-time snapshot of your database.

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

Backup retention period: day

Backup window:
 Choose a window
 No preference
 Copy tags to snapshots

Backup notification:

MySQL

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In
additional
config

Initial
db
name

Enable
backup
backup
will
stay available for

SQl version upgrade

deletion protection

do if desired.

MySQL

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Created database.
It will take sometime

Amazon RDS

Creating database databaseasename1
Your database might take a few minutes to launch. You can use settings from databaseasename1 to simplify configuration of suggested database add-ons while we finish creating your DB for you.

Databases (1)

Create database

View credential details

Database identifier: databasename1

Status: Creating

Instance: MySQL Community

Region & AZ: us-east-1

Size: db.t1.micro

CloudShell Feedback

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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.

Databases (1)

DB identifier	Status	Role	Engine	Region & AZ	Size
databaseawwrkshp1	Backing-up	Instance	MySQL Community	ap-south-1b	db.t3.mi

Create database

Name you gave db identifier

in
Connections
Credentials

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.

Connection details to your database databaseawwrkshp1

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: **databaseawwrkshp1.c3gquigmexsf.ap-south-1.rds.amazonaws.com** **Copy**

Create database

Root User

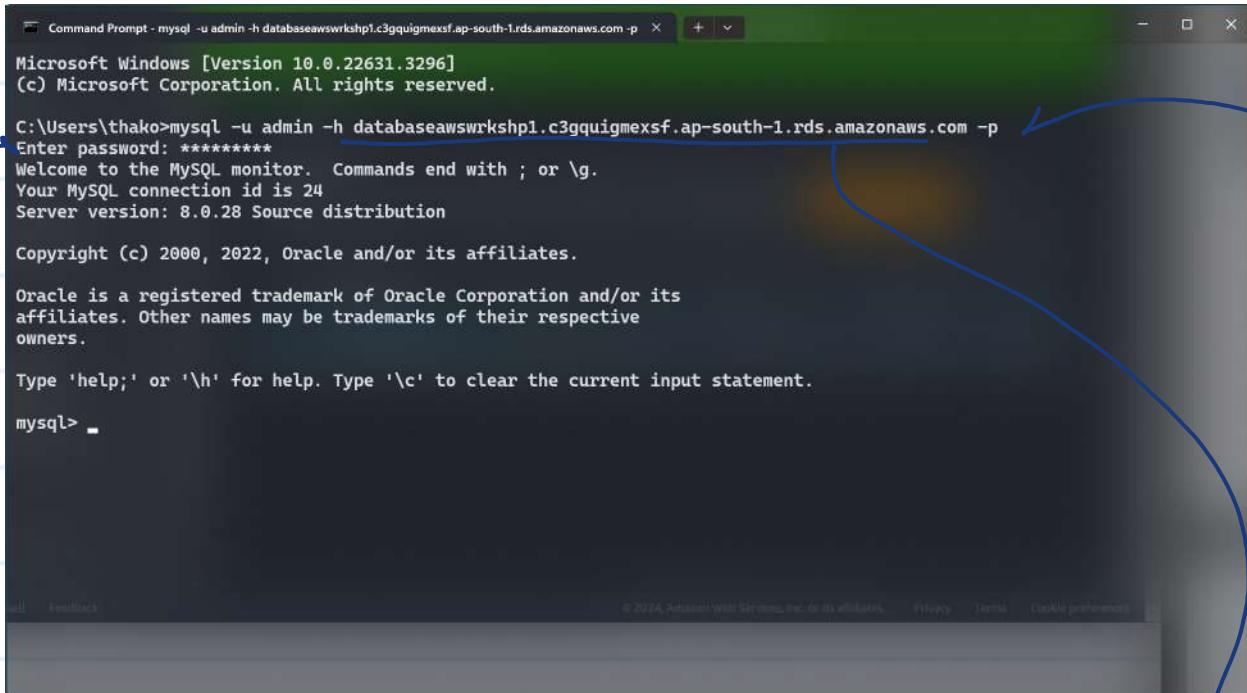
password

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 databaseawwrkshp1.c3gquigmexsf.ap-south-1.rds.amazonaws.com -p
Microsoft Windows [Version 10.0.22631.3296]
(c) Microsoft Corporation. All rights reserved.

C:\Users\thako>mysql -u admin -h databaseawwrkshp1.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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owners.

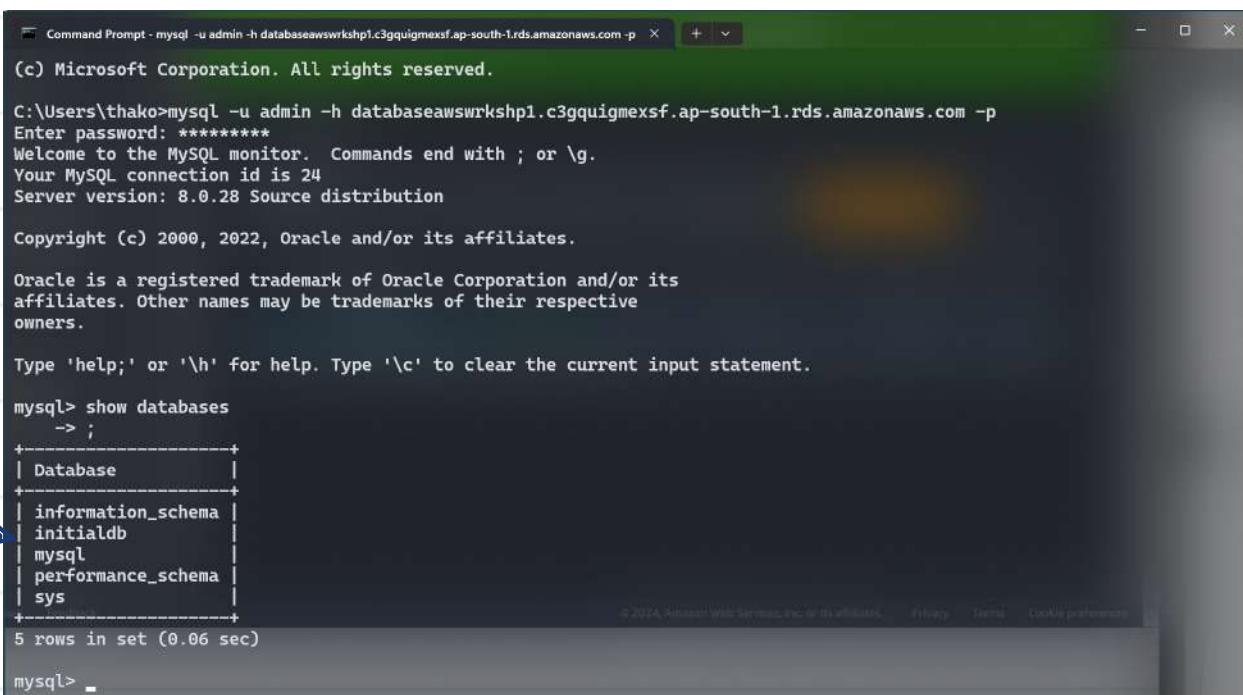
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

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 databaseawwrkshp1.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> 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 databaseawsrwrkshp1.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
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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 a web browser window with the URL adminer.org. The page features a large "Adminer" logo with a database icon. Below it is a sub-header "Database management in a single PHP file". A navigation bar includes links for "Adminer", "Adminer Editor", "Plugins", "News", "Forums", "Bugs", and "Code". The main content area displays a screenshot of the Adminer interface showing a table structure. To the right of the screenshot is a text block about Adminer's history and availability for various databases. A prominent "Download" button with a green arrow icon is highlighted with a blue oval. The URL <https://www.adminer.org/#download> is visible at the bottom.

Download

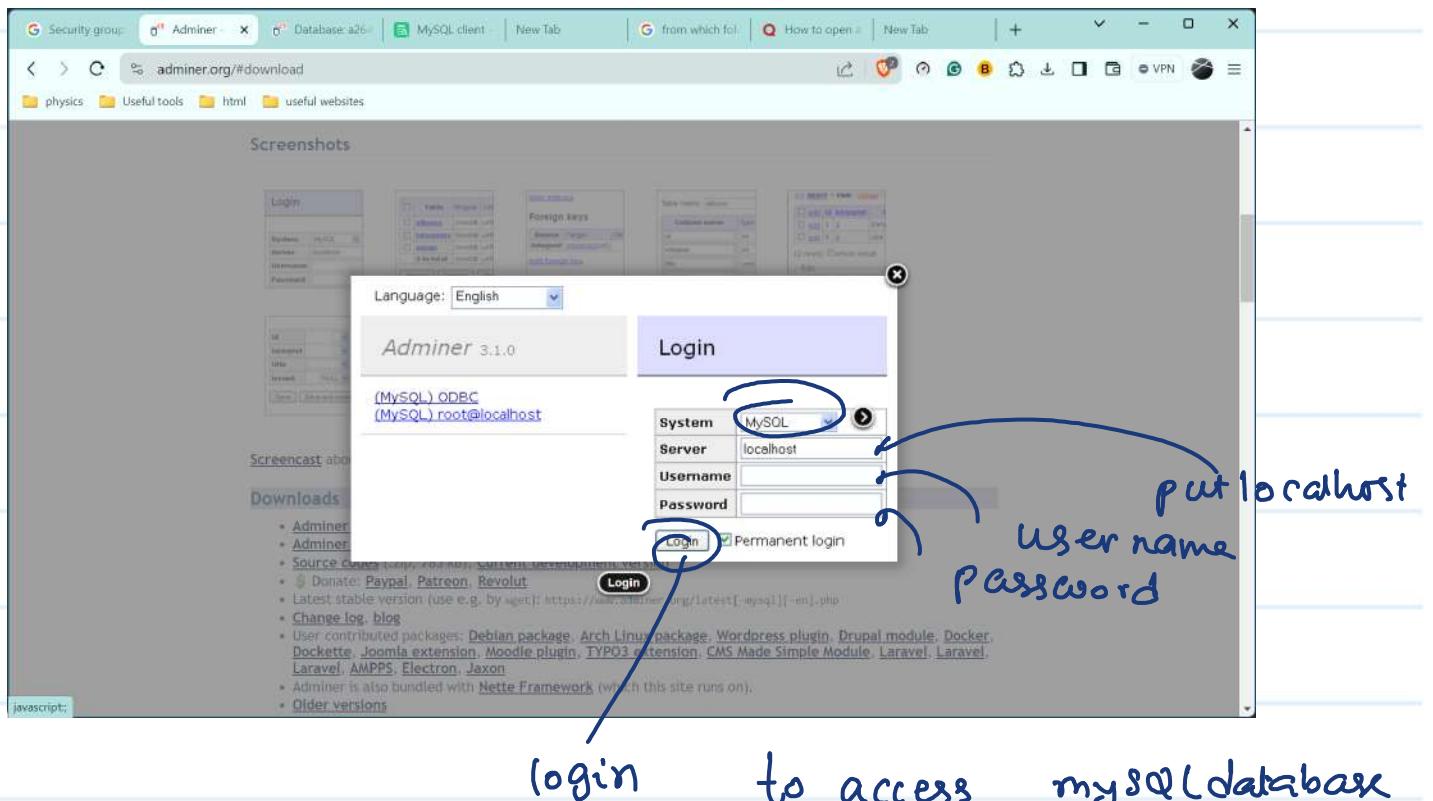
The screenshot shows a web browser window with the URL adminer.org/#download. The page has a header "Downloads" and a list of available packages: Adminer 4.8.1 (.php, 465 kB), Adminer 4.8.1 for MySQL (.php, 356 kB), Source codes (.zip, 785 kB), and a "Current development version". It also includes a "Donate" link for PayPal, Patreon, and Revolut. Below the downloads is a "Features" section with a long list of capabilities, including connecting to databases, managing tables, and executing SQL commands. The URL https://github.com/vran/adminer/releases/download/4.8.1/adminer-4.8.1..._will_them is visible at the bottom.

Download
for
MySQL

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



login to access mySQL database

this way you must have  
an additional user with

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\_Oghmteff

Tables and views

| Table             | Engine <sup>?</sup> | Collation <sup>?</sup> | Data Length <sup>?</sup> | Index Length <sup>?</sup> | Data Free <sup>?</sup> | Auto Increment <sup>?</sup> | Rows <sup>?</sup> | Comment <sup>?</sup> |
|-------------------|---------------------|------------------------|--------------------------|---------------------------|------------------------|-----------------------------|-------------------|----------------------|
| 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

Export  
this  
db

Adminer 4.8.1

DB: a264133\_Oghmteff

Export: a264133\_Oghmteff

Output: Open save gzip

Format:  SQL  CSV  TSV

Database:  Routines  Events

Tables: DROP+CREATE  Auto Increment  Triggers

Data: INSERT

Export:

| Tables     | Data                                     |
|------------|------------------------------------------|
| albums     | ~ 1 <input checked="" type="checkbox"/>  |
| interprets | ~ 1 <input checked="" type="checkbox"/>  |
| songs      | ~ 14 <input checked="" type="checkbox"/> |

All table and data

export

save to local machine

access database created on AWS through adminer

Language: English

Adminer 3.1.0

Login

(MySQL) ODBC  
(MySQL) root@localhost

System MySQL

Server localhost

Username

Password

Login Permanent login

1 put AWS db endpoint URL here

2 Username

3 Password

log in

Here choose import option

Database: a264133\_0ghmteff

Alter database Database schema Privileges

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> | 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

The screenshot shows the Adminer 4.8.1 interface for importing a database. On the left, there's a sidebar with 'Adminer 4.8.1', 'DB: a264133\_0ghmteff', and a list of SQL commands: 'select albums', 'select interprets', and 'select songs'. The main area is titled 'Import' and contains two sections: 'File upload' and 'From server'. The 'File upload' section has a 'SQL[.gz] (< 20MB)' input field with 'Choose Files' and 'No file chosen' buttons, an 'Execute' button, and checkboxes for 'Stop on error' and 'Show only errors'. A blue oval highlights the 'File upload' section. Handwritten notes in blue ink over this section read: 'choose previously downloaded file here upload from local machine and Execute'.

to get the database on localmachine

Migrated to Aws Database

This is Data Migration

# Task :

To create an API to access our Database created on AWS with node.js

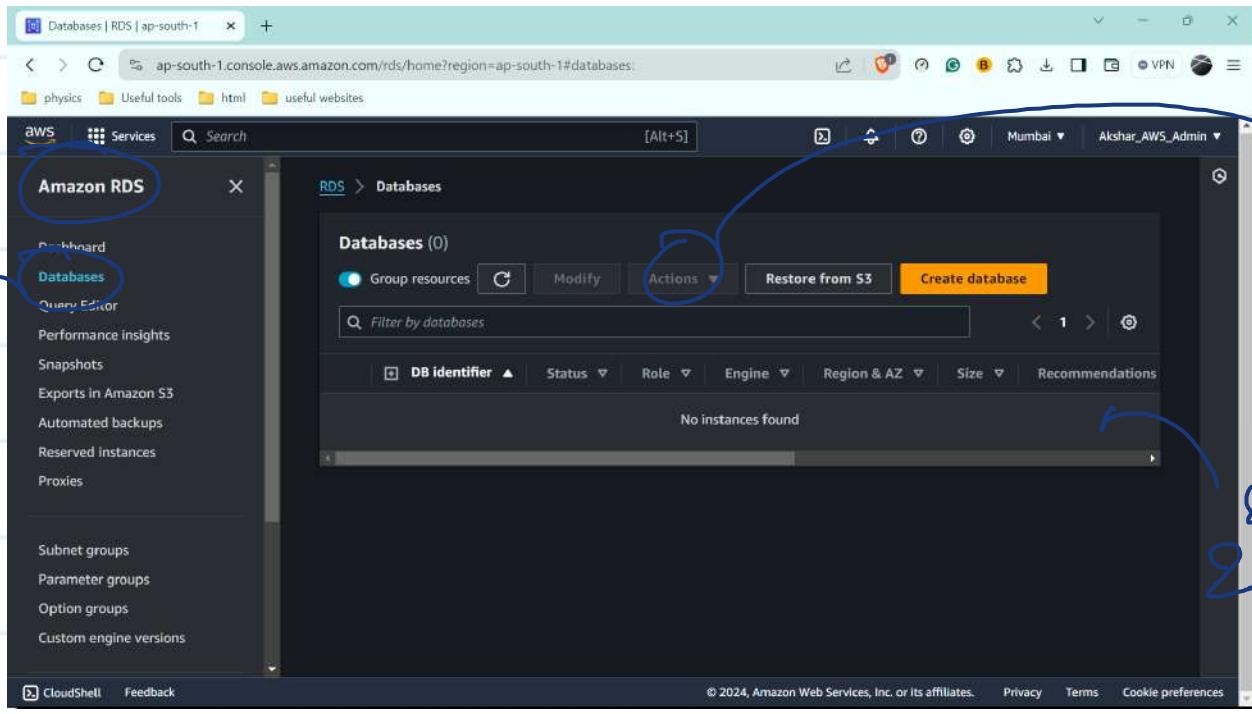
For this

- 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 or 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



3 Actions

4 delete

1 Select your  
2 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)

The screenshot shows the AWS RDS service page. At the top, there's a green success message: "Successfully created database databaseawsrwlshp1. You can use settings from databaseawsrwlshp1 to simplify configuration of suggested database add-ons while we finish creating your DB for you." Below this, the "Databases" section lists one database entry:

| DB identifier      | Status    | Role     | Engine          | Region & AZ | Size        |
|--------------------|-----------|----------|-----------------|-------------|-------------|
| databaseawsrwlshp1 | Available | Instance | MySQL Community | ap-south-1b | db.t3.micro |

On the left sidebar, under the "Amazon RDS" heading, the "Databases" option is selected. At the bottom left of the page, there's a "CloudShell" link, which is circled in blue and has the handwritten note "cloudshell" written below it.

The screenshot shows the AWS RDS console. A green notification bar at the top right states: "Successfully created database databaseawsrwrkshp1" and "You can use settings from databaseawsrwrkshp1 to simplify configuration of suggested database add-ons while we finish creating your DB for you." Below this, the "Databases" section shows one entry: "Database (1)" with "Actions" and "Create database" buttons. On the left sidebar, "CloudShell" is selected, and a terminal window titled "ap-south-1" is open, showing the prompt "[cloudshell-user@ip-10-130-5-147 ~]\$". A large blue circle highlights the CloudShell area. A small blue bracket on the right side indicates the end of the screenshot area.

