

Karthick VM

Batch – CIS 1.3

Milestone Assessment 2 – AWS – Set1

You are the AWS Administrator for LTIMindtree organization and your management has decided to implement an infrastructure with the following configurations.

1. Create a VPC

- VPC Name: DevVPC
- CIDR Block: 10.10.0.0/16

Create two Subnets inside DevVPC:

- Subnet1: 10.10.1.0/24 in AZ1
- Subnet2: 10.10.2.0/24 in AZ2
- Creating a VPC with specified requirements

The screenshot displays the AWS Management Console interface for creating a new VPC. The page title is 'Create VPC' with an 'info' link. Below the title, a brief description states: 'A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.' The 'VPC settings' section contains the following fields and options:

- Resources to create:** Two radio buttons are present. 'VPC only' is selected, and 'VPC and more' is unselected.
- Name tag - optional:** A text input field contains the value 'DevVPC'. A small note below the field reads: 'Creates a tag with a key of 'Name' and a value that you specify.'
- IPv4 CIDR block:** Two radio buttons are present. 'IPv4 CIDR manual input' is selected, and 'IPAM-allocated IPv4 CIDR block' is unselected. Below this, a text input field contains the value '10.10.0.0/16'. A note below the field reads: 'CIDR block size must be between /16 and /28.'
- IPv6 CIDR block:** Three radio buttons are present. 'No IPv6 CIDR block' is selected, 'IPAM-allocated IPv6 CIDR block' is unselected, and 'Amazon-provided IPv6 CIDR block' is unselected. Below this, a radio button for 'IPv6 CIDR owned by me' is also unselected.
- Tenancy:** A dropdown menu is set to 'Default'.

The bottom of the console shows the 'Tags' section, which is currently empty. The footer of the console includes the 'CloudShell' and 'Feedback' links on the left, and the copyright notice '© 2025, Amazon Web Services, Inc. or its affiliates.' along with 'Privacy', 'Terms', and 'Cookie preferences' links on the right.

VPC dashboard < AWS Global View Filter by VPC ▾

Virtual private cloud

Your VPCs

- Subnets
- Route tables
- Internet gateways
- Egress-only internet gateways
- Carrier gateways
- DHCP option sets
- Elastic IPs
- Managed prefix lists
- NAT gateways
- Peering connections
- Route servers [New](#)

Security

- Network ACLs
- Security groups

PrivateLink and Lattice

- Getting started

Endpoints

- CloudShell
- Feedback

You successfully created vpc-0155ed4cfd8c8d9d7 / DevVPC

vpc-0155ed4cfd8c8d9d7 / DevVPC [Actions](#) ▾

Details [Info](#)

VPC ID [vpc-0155ed4cfd8c8d9d7](#)

DNS resolution [Enabled](#)

Main network ACL [acl-084b085df900a518c](#)

IPv6 CIDR (Network border group) [-](#)

State [Available](#)

Tenancy [default](#)

Default VPC [No](#)

Network Address Usage metrics [Disabled](#)

Block Public Access [Off](#)

DHCP option set [dopt-0cd99479f171260a](#)

IPv4 CIDR [10.10.0.0/16](#)

Route 53 Resolver DNS Firewall rule groups [-](#)

DNS hostnames [Disabled](#)

Main route table [rtb-04077264b1714a56b](#)

IPv6 pool [-](#)

Owner ID [556415206823](#)

Resource map [Info](#)

Resource map [Info](#) [Show all details](#)

VPC [Your AWS virtual network](#)

Subnets (0) [Subnets within this VPC](#)

Route tables (1) [Route network traffic to resources](#)

Network Connections (0) [Connections to other networks](#)

DevVPC

rtb-04077264b1714a56b

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- Creating subnet 1 with specified requirements → Zone 1 a

VPC > Subnets Create subnet

VPC ID [vpc-0155ed4cfd8c8d9d7 \(DevVPC\)](#)

Associated VPC CIDRs

IPv4 CIDRs [10.10.0.0/16](#)

Subnet settings [Info](#)

Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name [Info](#)

Create a tag with a key of 'Name' and a value that you specify.

[Subnet1](#)

The name can be up to 256 characters long.

Availability Zone [Info](#)

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

[United States \(N. Virginia\) / us-east-1a](#)

IPv4 VPC CIDR block [Info](#)

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

[10.10.0.0/16](#)

IPv4 subnet CIDR block

[10.10.1.0/24](#) 256 IPs

CloudShell Feedback

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VPC > Subnets

You have successfully created 1 subnet: subnet-0d876d6a88f32bdba

Subnets (1) [Info](#)

Find subnets by attribute or tag

[Subnet ID: subnet-0d876d6a88f32bdba](#) [Clear filters](#)

[Subnet1](#) [subnet-0d876d6a88f32bdba](#) [Available](#) [vpc-0155ed4cfd8c8d9d7 | Dev...](#) [Block Public...](#) [Off](#) [10.10.1.0/24](#) [-](#) [-](#)

Select a subnet

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- Creating subnet 2 with specified requirements → Zone 1b

Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name
Create a tag with a key of 'Name' and a value that you specify.
Subnet2
The name can be up to 256 characters long.

Availability Zone info
Choose the zone in which your subnet will reside, or let Amazon choose one for you.
United States (N. Virginia) / us-east-1b (us-east-1b)

IPv4 VPC CIDR block info
Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must be within this block.
10.10.0.0/16

IPv4 subnet CIDR block
10.10.2.0/24 256 IPs

You have successfully created 1 subnet: subnet-0785916c62ab52117

Subnets (1) info

Find subnets by attribute or tag

<input type="checkbox"/>	Name	Subnet ID	State	VPC	Block Public...	IPv4 CIDR	IPv6 CIDR	IPv6 C...
<input type="checkbox"/>	Subnet2	subnet-0785916c62ab52117	Available	vpc-0155ed4cfdcd8d9d7 (Dev...	Off	10.10.2.0/24	--	--

Select a subnet

- Accessing the ec2 instance → i.e connect the instance → To connect via the ec2 console we want to enable ssh connection.

```

Amazon Linux 2023
http://aws.amazon.com/linux/amazon-linux-2023

[ec2-user@ip-10-10-2-231 ~]$ sudo su
[root@ip-10-10-2-231 ec2-user]#

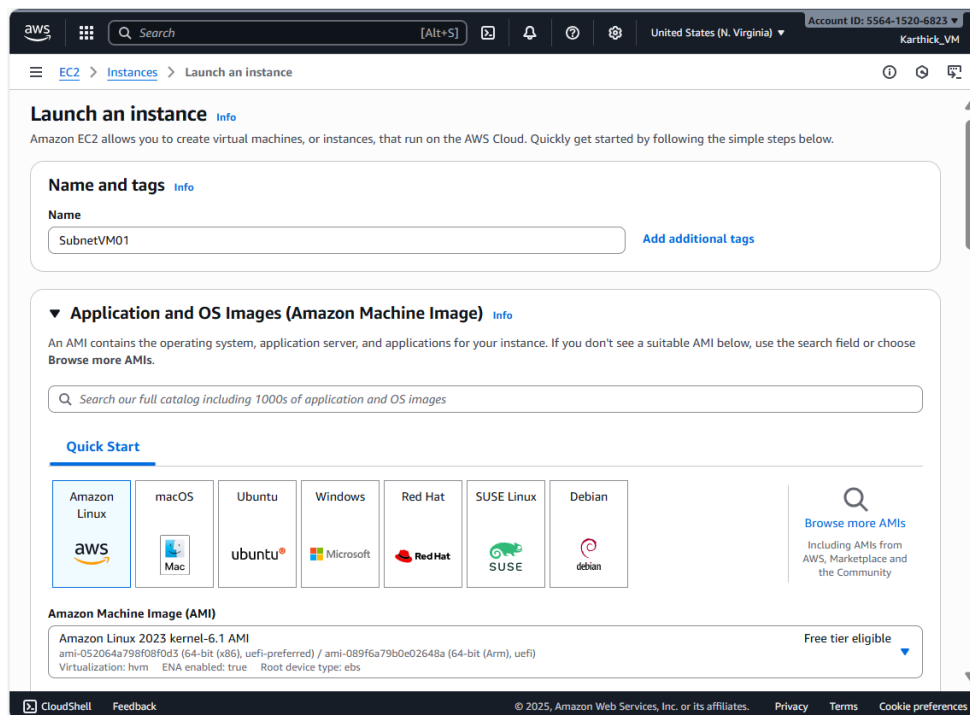
```

i-07bf919b2d6a458e9 (SubnetVM01)
PublicIP: 34.200.254.134 PrivateIP: 10.10.2.231

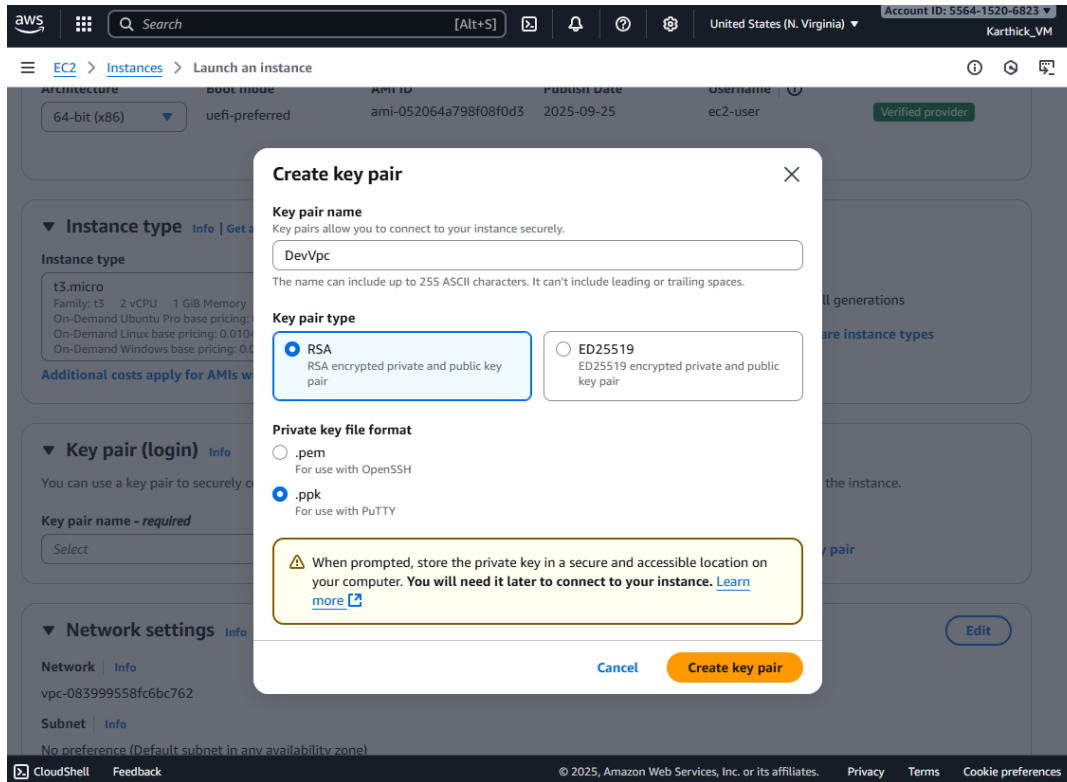
2. Create an EC2 Instance

- Instance Name: SubnetVM01
- AMI: Windows Server 2019 Base / Amazon Linux 2023 Kernel-6.1 AMI
- Instance Type: t2.micro(Or t3 micro)
- Authentication: Create Key-Pair • VPC: DevVPC
- Subnet: Subnet2
- Public IP: Enabled
- Security Group: Basic rules(SSH/HTTP/RDP) : Follow Question 3 for this
- Region: us-east-1 (N. Virginia) or Allowed Region

- Creating Ec2 with specified requirements



- Creating a key-pair



- Creating Security group based on Question 3 requirements

security group name - required

netlabs-sg

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and _-./[!@#%^&*(){}|;:~`

Description - required | Info

security group

Inbound Security Group Rules

▼ Security group rule 1 (TCP, 3389, 0.0.0.0/0)

Type | Info

rdp

Protocol | Info

TCP

Port range | Info

3389

Source type | Info

Anywhere

Source | Info

Q Add CIDR, prefix list or security group

0.0.0.0/0 X

Description - optional | Info

e.g. SSH for admin desktop

Remove

▼ Security group rule 2 (TCP, 80, 0.0.0.0/0)

Type | Info

HTTP

Protocol | Info

TCP

Port range | Info

80

Source type | Info

Custom

Source | Info

Q Add CIDR, prefix list or security group

0.0.0.0/0 X

Description - optional | Info

e.g. SSH for admin desktop

Remove

▼ Security group rule 3 (TCP, 443, 0.0.0.0/0)

Type | Info

HTTPS

Protocol | Info

TCP

Port range | Info

443

Source type | Info

Custom

Source | Info

Q Add CIDR, prefix list or security group

0.0.0.0/0 X

Description - optional | Info

e.g. SSH for admin desktop

Remove

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

X

▼ Summary

Number of instances | Info

1

Software Image (AMI)

Amazon Linux 2023 AMI 2023.9.2...read more

ami-052064a798f08f0d3

Virtual server type (instance type)

t3.micro

Firewall (security group)

New security group

Storage (volumes)

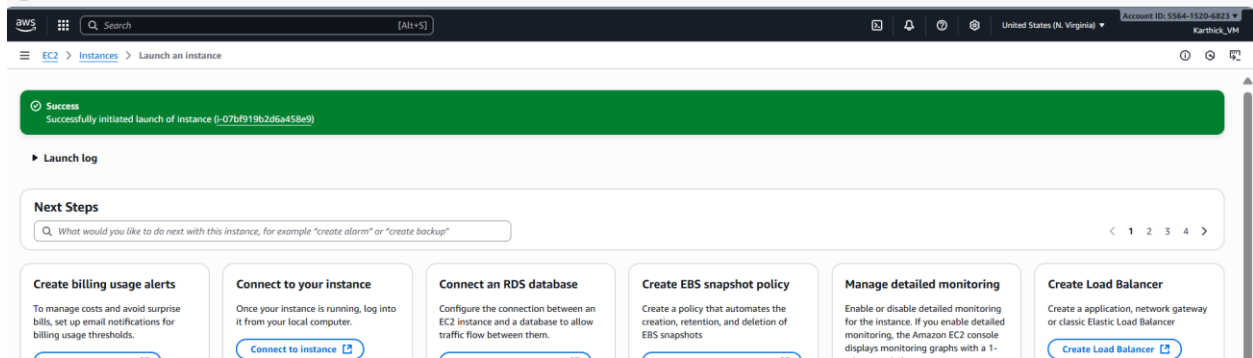
1 volume(s) - 8 GiB

Cancel

Launch instance

Preview code

- Instance is Created successfully.



3. Create a Security Group

- Name: netlabs-sg
- Define inbound and outbound rules as mentioned below:
 - o Inbound Rules: Allow RDP (3389), HTTP (80), HTTPS (443)
 - o Outbound Rules: Deny HTTP (80) and HTTPS (443)
- Associate this Security Group with EC2 in Subnet2 you are creating

- Creating Security group based on specified requirements

Security group name:

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and _-./@|~*+=&[]!\$*

Description - required:

Inbound Security Group Rules

▼ Security group rule 1 (TCP, 3389, 0.0.0.0/0)

Type	Protocol	Port range	Source type	Source	Description - optional
rdp	TCP	3389	Anywhere	0.0.0.0/0	e.g. SSH for admin desktop

▼ Security group rule 2 (TCP, 80, 0.0.0.0/0)

Type	Protocol	Port range	Source type	Source	Description - optional
HTTP	TCP	80	Custom	0.0.0.0/0	e.g. SSH for admin desktop

▼ Security group rule 3 (TCP, 443, 0.0.0.0/0)

Type	Protocol	Port range	Source type	Source	Description - optional
HTTPS	TCP	443	Custom	0.0.0.0/0	e.g. SSH for admin desktop

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

Summary

Number of instances: 1

Software Image (AMI): Amazon Linux 2023 AMI 2023.9.2...read more
ami-052064a798f08f0d3

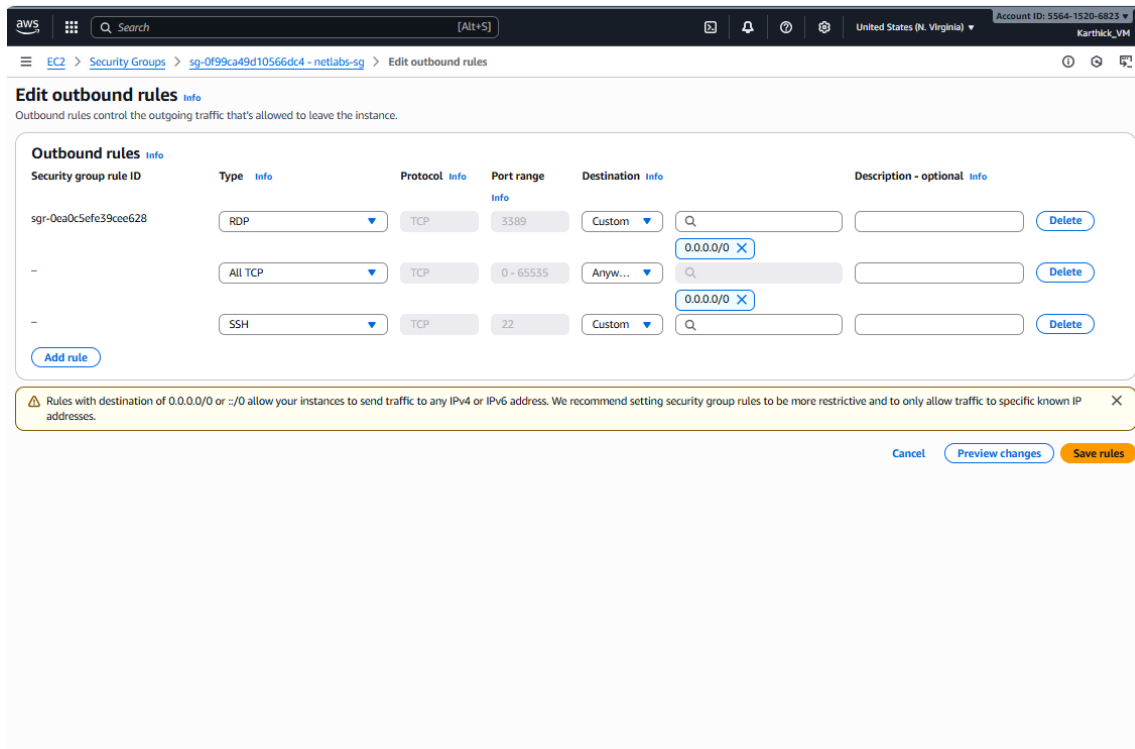
Virtual server type (instance type): t3.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

Cancel Launch instance Preview code

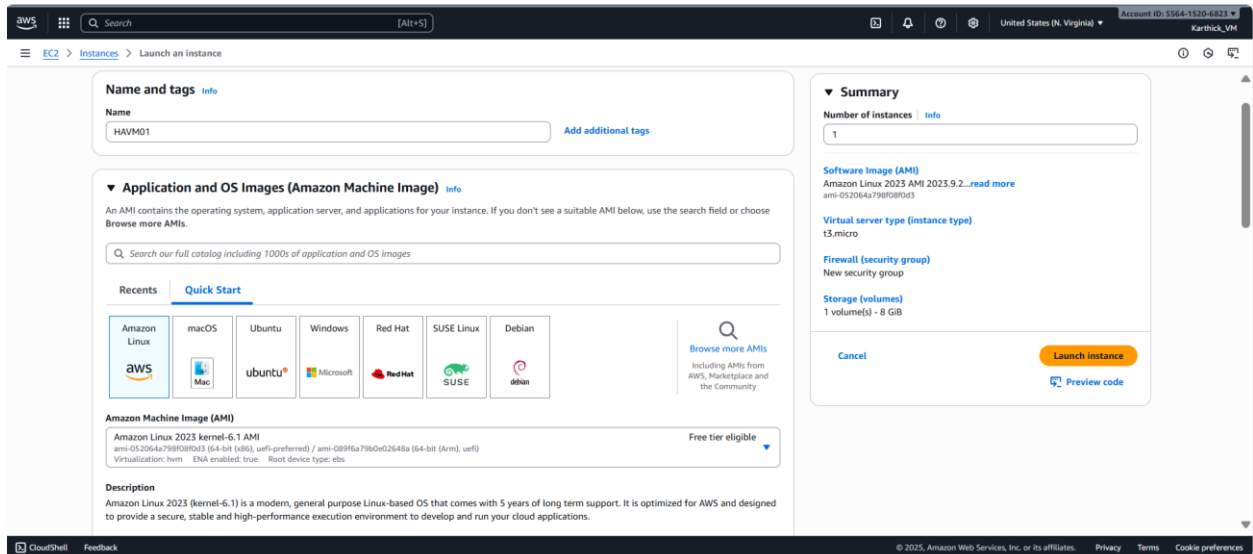
- Here in outbound rule we specify RDP,TCP and SSH Traffic so it automatically denied the http and https traffic



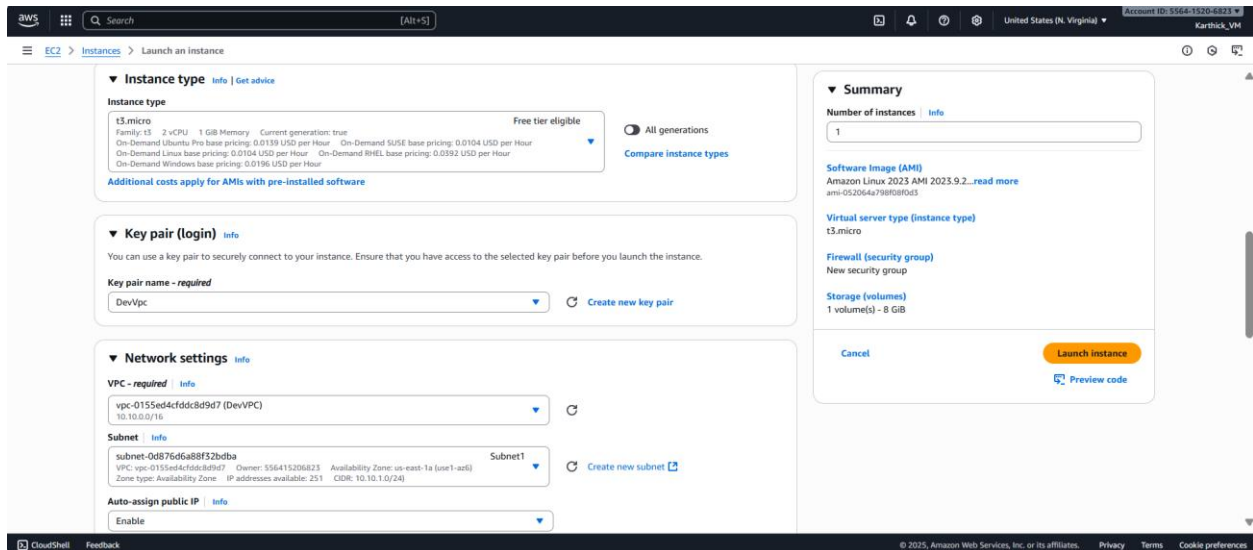
4. Create an Availability Zone Setup

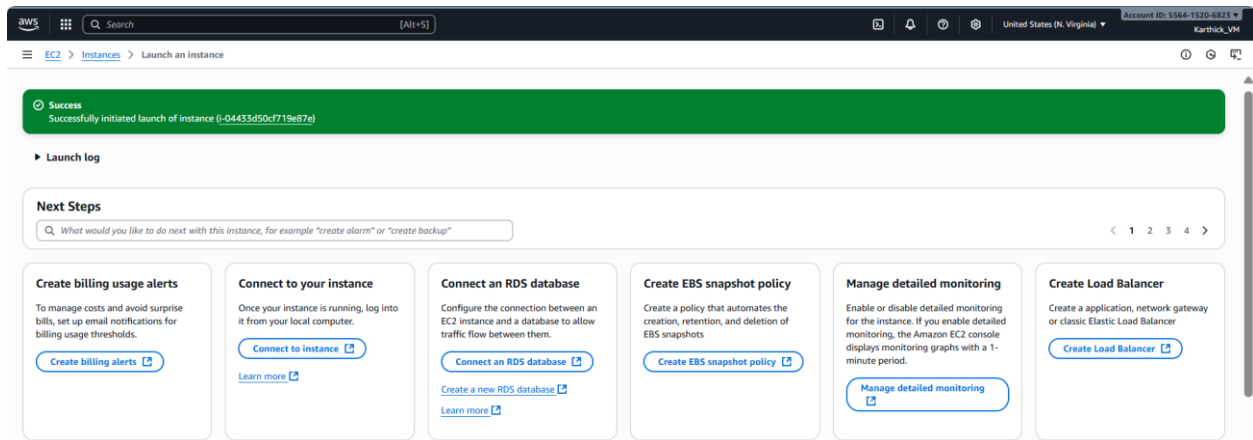
- Availability Option: Availability Set equivalent in AWS → Launch multiple instances in different Availability Zones.
- Instance Name: HAVM01
- AMI: Windows Server 2019 Base / Amazon Linux 2023 Kernel-6.1 AMI
- Instance Type: t2.micro(Or t3 micro)
- Authentication: Create Key-Pair
- VPC: DevVPC • Subnet: Subnet2
- Public IP: Enabled
- Security Group: Basic rules(SSH/HTTP/RDP) : Follow Question 3 for this
- Region: us-east-1 (N. Virginia) or Allowed Region
- Placement: Choose two different Availability Zones in us-east-1 i.e. Subnet1 of selected region for high availability.

- Creating a Ec2 Instance with specified requirements

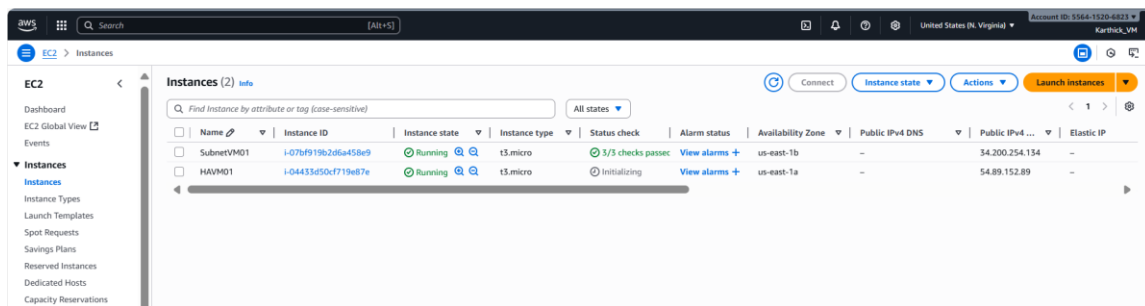


- Here we specify this ec2 in subnet 1 so it will be created in availability zone 1a , whereas the ec2 which is created using subnet 2 will be created in availability zone 1b.





- Here you can clearly see that the instance created in subnet 1 is created in availability zone 1a and the instance created in subnet2 is created in availability zone 1b



5. Create an S3 Bucket and Generate Pre-Signed URL

- Create a private S3 bucket (Do not make it Public).
- Enable ACL
- Create Folder name it container
- Upload a file into a container (folder) inside the bucket.
- Use Object Url and check whether you can see it or not, if No. How can you see with object ACL enablement.
- Ensure that the bucket and objects are private by default
- Creating a s3 bucket with specified requirements

General configuration

AWS Region
US East (N. Virginia) us-east-1

Bucket type [Info](#)

☒ **General purpose**
Recommended for most use cases and access patterns. General purpose buckets are the original S3 bucket type. They allow a mix of storage classes that redundantly store objects across multiple Availability Zones.

☐ **Directory**
Recommended for low-latency use cases. These buckets use only the S3 Express One Zone storage class, which provides faster processing of data within a single Availability Zone.

Bucket name [Info](#)
bucketzz7
Bucket names must be 3 to 63 characters and unique within the global namespace. Bucket names must also begin and end with a letter or number. Valid characters are a-z, 0-9, periods (.), and hyphens (-). [Learn More](#)

Copy settings from existing bucket - optional
Only the bucket settings in the following configuration are copied.
[Choose bucket](#)
Format: s3://bucket/prefix

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

Object Ownership

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

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

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

- Blocking the public access to the bucket so that it will remain private.

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 to buckets or access points with policies that grant public access to buckets and objects.

- Creating folder named 'Container'

Create folder [Info](#)
Use folders to group objects in buckets. When you create a folder, S3 creates an object using the name that you specify followed by a slash (/). This object then appears as folder on the console. [Learn more](#)

ⓘ Your bucket policy might block folder creation
If your bucket policy prevents uploading objects without specific tags, metadata, or access control list (ACL) grantees, you will not be able to create a folder using this configuration. Instead, you can use the [upload configuration](#) to upload an empty folder and specify the appropriate settings.

Folder

Folder name
Container
Folder names can't contain "/>. [See rules for naming](#)

Server-side encryption [Info](#)
Server-side encryption protects data at rest.

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

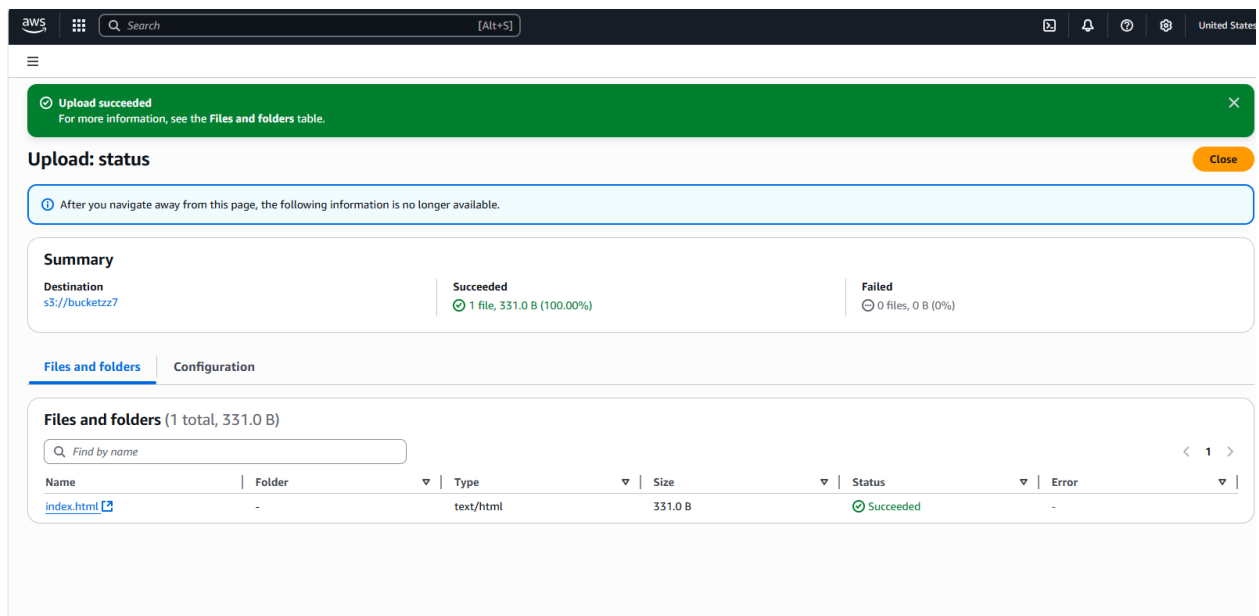
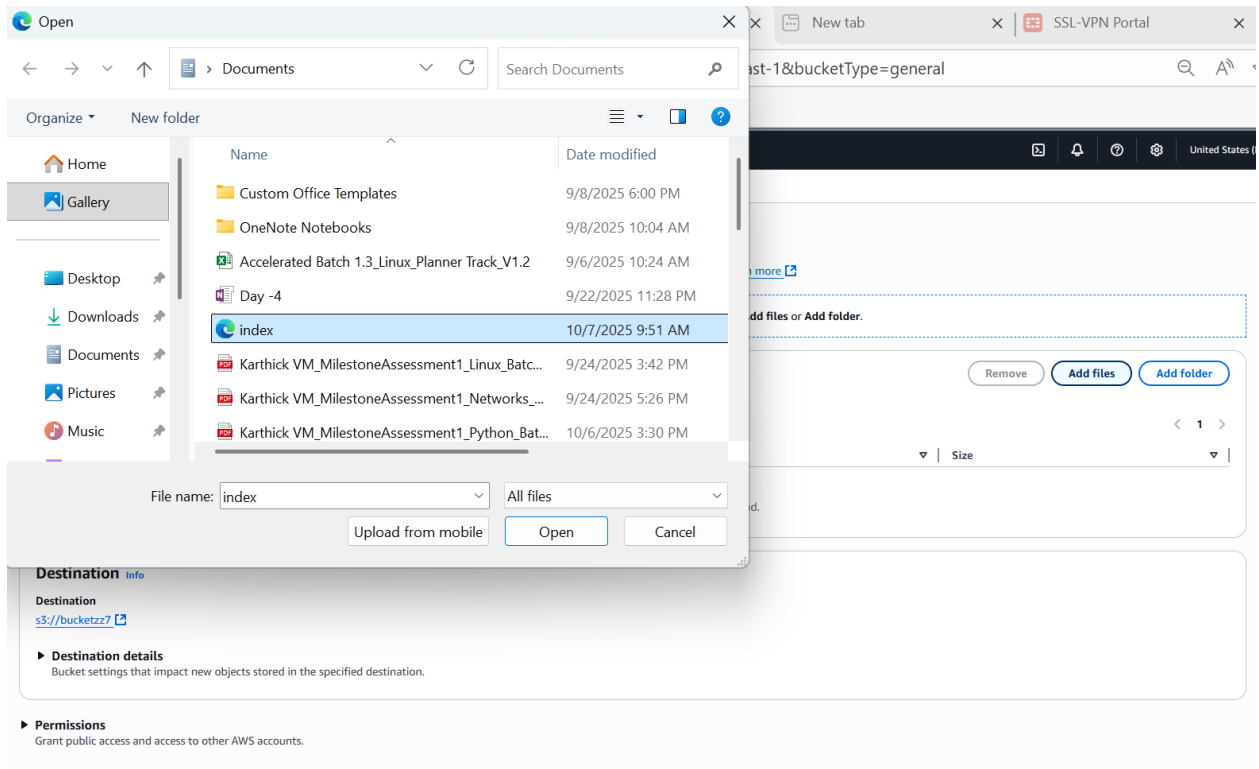
Server-side encryption

☒ **Don't specify an encryption key**
The bucket settings for default encryption are used to encrypt the folder object when storing it in Amazon S3.

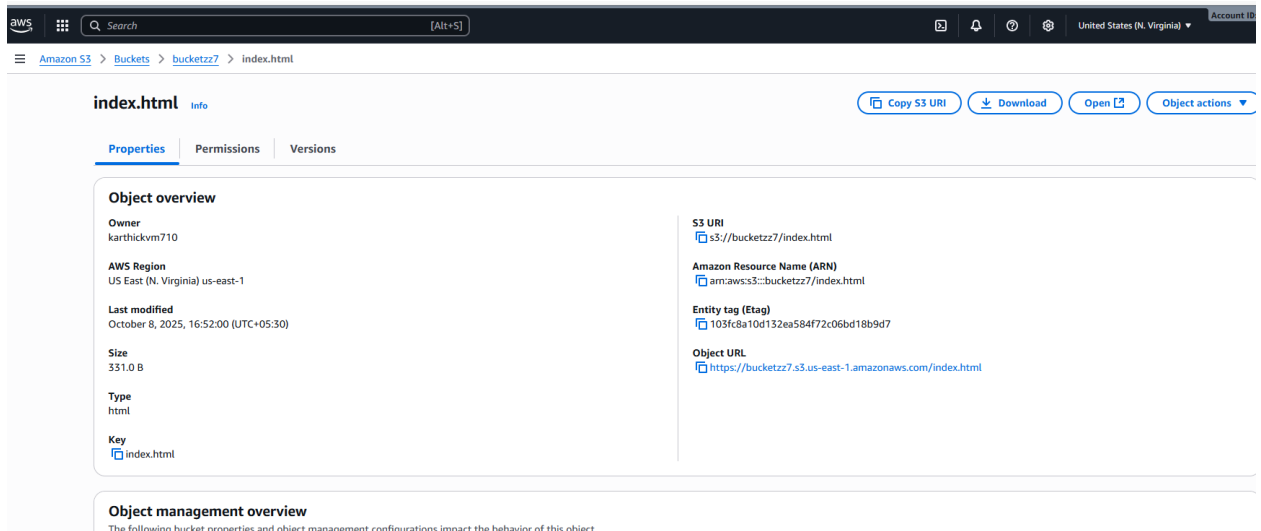
☐ **Specify an encryption key**
The specified encryption key is used to encrypt the folder object before storing it in Amazon S3.

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

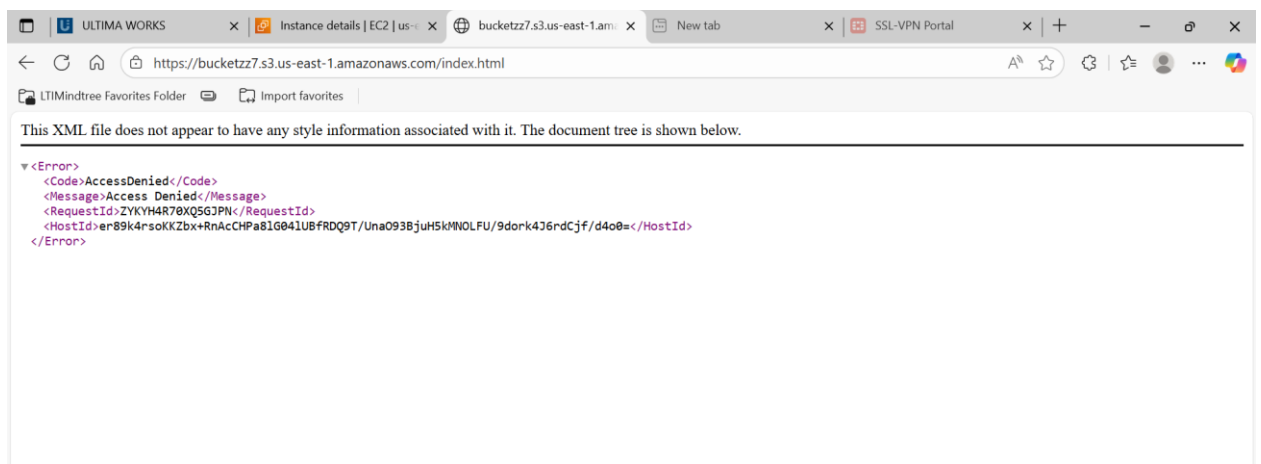
- Upload files in the bucket



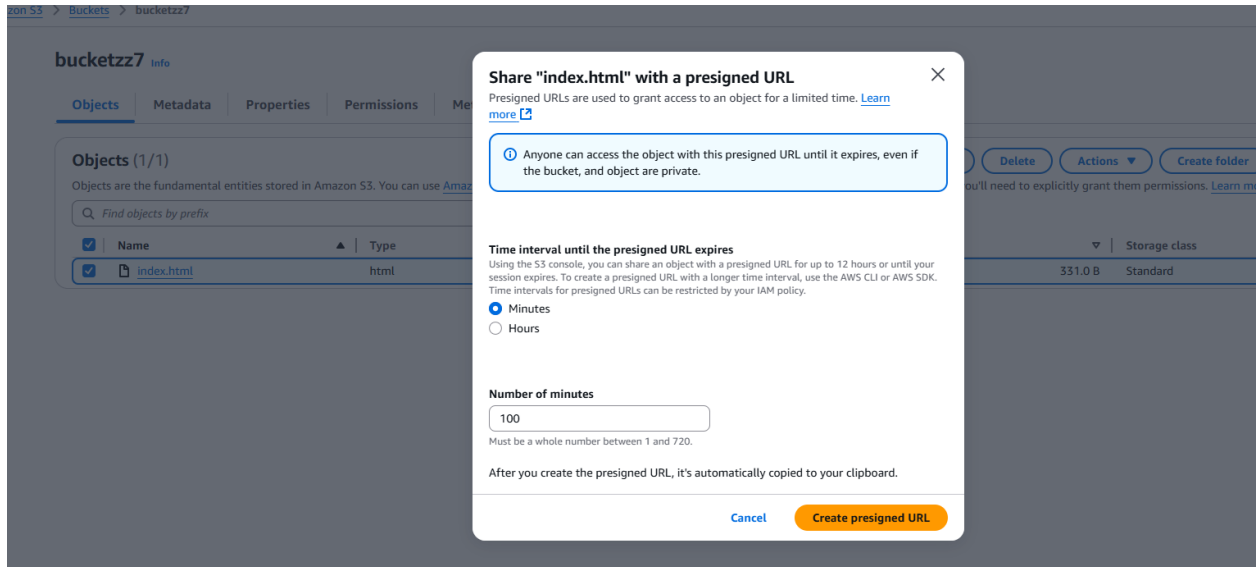
- Go to the file and there you can be able to see object url of the file → try to access it.



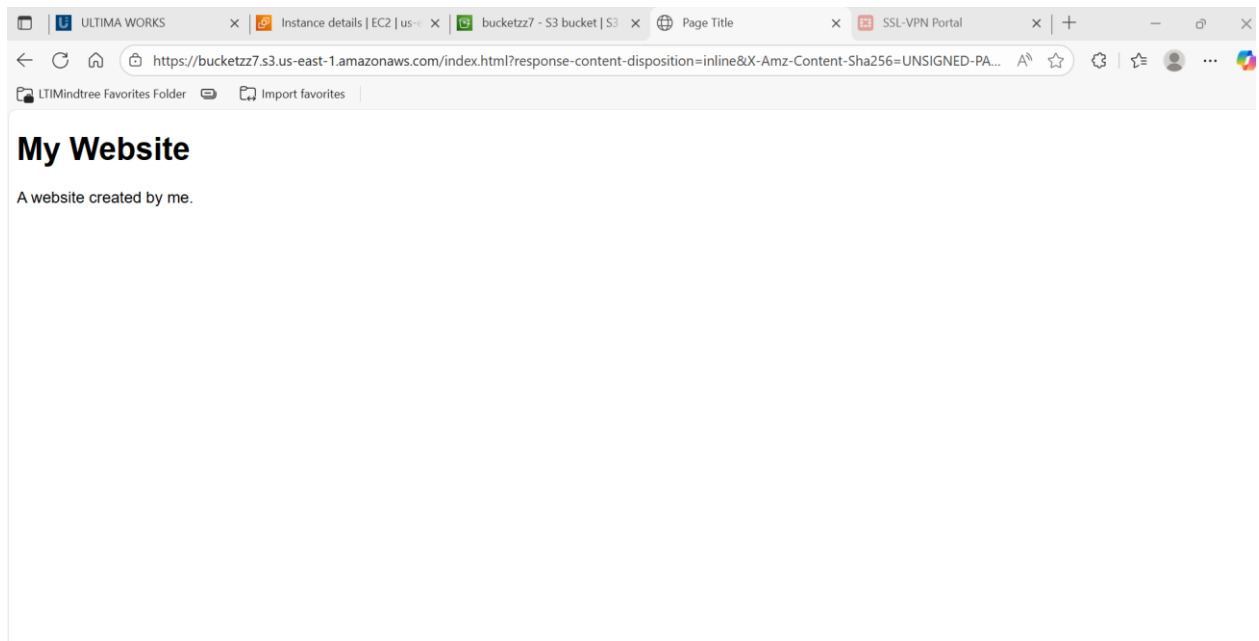
- When you try to access the file using the url you will be displayed with a error message stating access denied because , The bucket and object are private by default.



- Now come back to the bucket page and click the file and click 'actions' there click 'share file with presigned url' and specify time duration.



- Now you can be able to access the file using the presigned url.



- Here you can clearly see that the permissions of the bucket still blocks the public access i.e the bucket still remains private but on the other hand we can able to access the file content in it which is because of the presigned url.

