

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 shows the 'Create VPC' configuration page in the AWS Management Console. The top navigation bar includes the AWS logo, a search bar, and account information (Account ID: 5564-1520-6821, Region: United States (N. Virginia), User: Karthick VM). The main form is titled 'Create VPC' and contains several sections:

- VPC settings**:
 - Resources to create**: A radio button group for 'VPC only' (selected) and 'VPC and more'. The 'VPC and more' option is disabled.
 - Name tag - optional**: A text input field containing 'DevVPC'.
- IPv4 CIDR block**:
 - A radio button group for 'IPv4 CIDR manual input' (selected) and 'IPAM-allocated IPv4 CIDR block'. The 'IPAM-allocated' option is disabled.
 - An input field showing '10.10.0.0/16'.
 - A note: 'CIDR block size must be between /16 and /28.'
- IPv6 CIDR block**:
 - A radio button group for 'No IPv6 CIDR block' (selected), 'IPAM-allocated IPv6 CIDR block', 'Amazon-provided IPv6 CIDR block', and 'IPv6 CIDR owned by me'. The 'Amazon-provided' and 'IPv6 CIDR owned by me' options are disabled.
- Tenancy**: A dropdown menu set to 'Default'.
- Tags**: A section for adding tags, currently empty.

At the bottom of the page, there are links for 'CloudShell', 'Feedback', and copyright information: '© 2025, Amazon Web Services, Inc. or its affiliates.' and links to 'Privacy', 'Terms', and 'Cookie preferences'.

VPC ID: vpc-0155ed4cfddc8d9d7

State: Available

Tenancy: default

Main network ACL: ad-084085df900a518c

IPv6 CIDR (Network border group): -

Block Public Access: Off

DHCP option set: dopt-0x0ff99479f171260a

IPv4 CIDR: 10.10.0.0/16

Default VPC: No

Network Address Usage metrics: Disabled

DNS hostnames: Disabled

Main route table: rtb-04077264b1714a56b

IPv6 pool: -

Route 53 Resolver DNS Firewall rule groups: -

Owner ID: 556415206823

- Creating subnet 1 with specified requirements → Zone 1 a

VPC ID: vpc-0155ed4cfddc8d9d7 (DevVPC)

Associated VPC CIDRs: 10.10.0.0/16

Subnet settings:

Subnet 1 name: Subnet1

Availability Zone: United States (N. Virginia) / us-east-1a

IPv4 VPC CIDR block: 10.10.0.0/16

IPv4 subnet CIDR block: 10.10.1.0/24

Name	Subnet ID	State	VPC	Block Public...	IPv4 CIDR	IPv6 CIDR
Subnet1	subnets-0d876d6a88f32bdb	Available	vpc-0155ed4cfddc8d9d7 Dev...	Off	10.10.1.0/24	-

- Creating subnet 2 with specified requirements → Zone 1b

Associated VPC CIDRs

IPv4 CIDRs
10.10.0.0/16

Subnet settings
Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name
Create a layer with a key of 'Name' and a value that you specify.
 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.

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.

IPv4 subnet CIDR block
 256 IPs

Subnets (1) Info

Subnets

Name	Subnet ID	State	VPC	Block Public...	IPv4 CIDR	IPv6 CIDR	IPv6 C
Subnet2	subnet-0785916c62ab52117	Available	vpc-0155ed4cfddc8d9d7 Dev...	Off	10.10.0.0/24	-	-

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
https://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)
PublicIPs: 34.200.254.134 PrivateIPs: 10.10.2.231

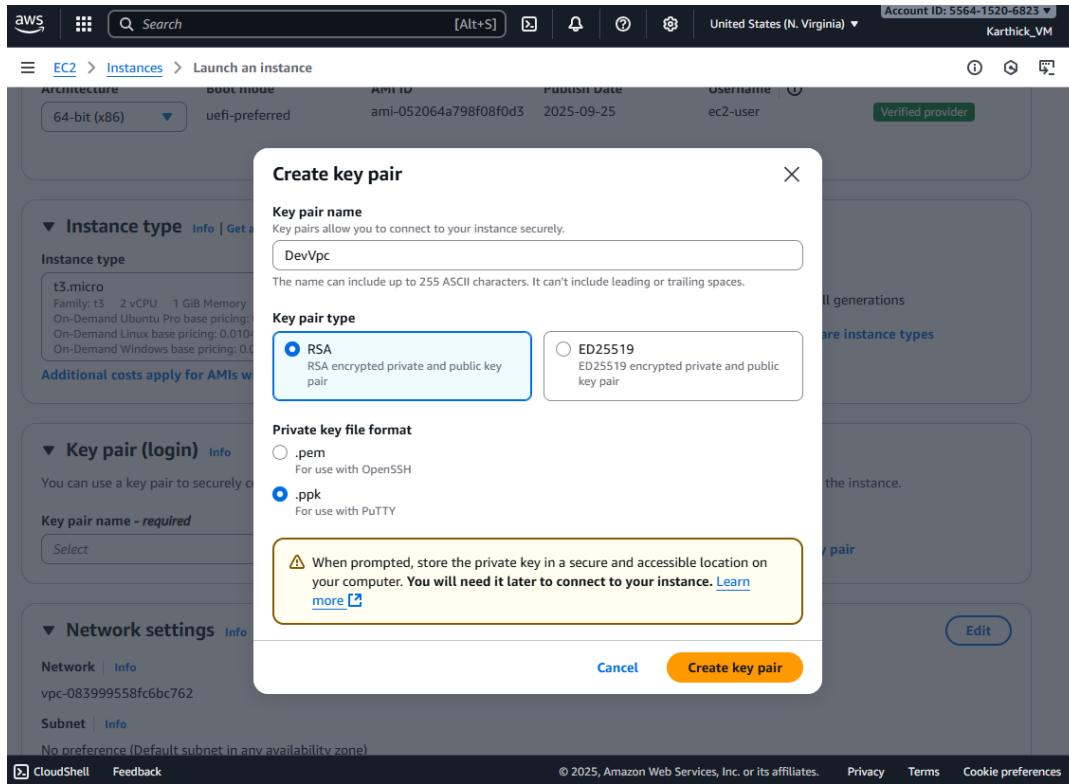
2. Create an EC2 Instance

- 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

The screenshot shows the AWS EC2 'Launch an instance' wizard. The first step, 'Name and tags', is completed with the name 'SubnetVM01'. The second step, 'Application and OS Images (Amazon Machine Image)', lists various OS options like Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE Linux, and Debian. The 'Amazon Linux 2023 kernel-6.1 AMI' is selected. The bottom of the screen shows standard AWS navigation and footer links.

- Creating a key-pair



● Creating Security group based on Question 3 requirements

Security group name - required

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
rdp	TCP	3389

Source type

Anywhere

Source

Description - optional

e.g. SSH for admin desktop

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

Type	Protocol	Port range
HTTP	TCP	80

Source type

Custom

Source

Description - optional

e.g. SSH for admin desktop

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

Type	Protocol	Port range
HTTPS	TCP	443

Source type

Custom

Source

Description - optional

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

- Instance is Created successfully.

The screenshot shows the AWS EC2 Instances Launch instance page. At the top, there's a search bar with 'Search' and a keyboard shortcut '[Alt+S]'. On the right, it shows 'United States (N. Virginia)' and 'Karthick_VH'. Below the header, the breadcrumb navigation reads 'EC2 > Instances > Launch an instance'. A green success message box says 'Successfully initiated launch of instance (i-07bf91b2d6a458e9)'. Below the message, a link 'Launch log' is shown. The main content area is titled 'Next Steps' and contains a question 'What would you like to do next with this instance, for example "create alarm" or "create backup"' followed by a list of six items:

- Create billing usage alerts**: To manage costs and avoid surprise bills, set up email notifications for billing usage thresholds.
- Connect to your instance**: Once your instance is running, log into it from your local computer. A blue 'Connect to instance' button is available.
- Connect an RDS database**: Configure the connection between an EC2 instance and a database to allow traffic flow between them.
- Create EBS snapshot policy**: Create a policy that automates the creation, retention, and deletion of EBS snapshots.
- Manage detailed monitoring**: Enable or disable detailed monitoring for the instance. If you enable detailed monitoring, the Amazon EC2 console displays monitoring graphs with a 1-
- Create Load Balancer**: Create a application, network gateway or classic Elastic Load Balancer. A blue 'Create Load Balancer' button is available.

3. Create a Security Group

- Name: netlabs-sg
 - Define inbound and outbound rules as mentioned below:
 - Inbound Rules: Allow RDP (3389), HTTP (80), HTTPS (443)
 - 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 - required

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](#)

Inbound Security Group Rules

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

Type Info	Protocol Info	Port range Info
rdp	TCP	3389
Source type Info	Source Info	Description - optional Info
Anywhere	<input type="text" value="Q, Add CIDR, prefix list or security group"/>	e.g. SSH for admin desktop
0.0.0.0/0 X		

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

Type Info	Protocol Info	Port range Info
HTTP	TCP	80
Source type Info	Source Info	Description - optional Info
Custom	<input type="text" value="Q, Add CIDR, prefix list or security group"/>	e.g. SSH for admin desktop
0.0.0.0/0 X		

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

Type Info	Protocol Info	Port range Info
HTTPS	TCP	443
Source type Info	Source Info	Description - optional Info
Custom	<input type="text" value="Q, Add CIDR, prefix list or security group"/>	e.g. SSH for admin desktop
0.0.0.0/0 X		

Summary

Number of instances | [Info](#)

1

Software Image (AMI)

Amazon Linux 2023 AMI 2023.9.2... [read more](#)

ami-052064798fb0f0d5

Virtual server type (instance type)

t3.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GB

[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

Edit outbound rules Info

Outbound rules control the outgoing traffic that's allowed to leave the instance.

Outbound rules <small>Info</small>	Type <small>Info</small>	Protocol <small>Info</small>	Port range <small>Info</small>	Destination <small>Info</small>	Description - optional <small>Info</small>
sgr-0ea0c5efc39ce628	RDP	TCP	3389	Custom <input type="button" value="Q"/> 0.0.0.0/0 <input type="button" value="X"/>	<input type="button" value="Delete"/>
-	All TCP	TCP	0 - 65535	Anyw... <input type="button" value="Q"/> 0.0.0.0/0 <input type="button" value="X"/>	<input type="button" value="Delete"/>
-	SSH	TCP	22	Custom <input type="button" value="Q"/> 0.0.0.0/0 <input type="button" value="X"/>	<input type="button" value="Delete"/>

[Add rule](#)

⚠ Rules with destination of 0.0.0.0/0 or ::/0 allow your instances to send traffic to any IPv4 or IPv6 address. We recommend setting security group rules to be more restrictive and to only allow traffic to specific known IP addresses.

[Cancel](#) [Preview changes](#) [Save rules](#)

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

Name and tags

Name: HAVM01

Application and OS Images (Amazon Machine Image)

Amazon Linux 2023 kernel-6.1 AMI

Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Amazon Linux 2023 (kernel-6.1) is a modern, general purpose Linux-based OS that comes with 5 years of long term support. It is optimized for AWS and designed to provide a secure, stable and high-performance execution environment to develop and run your cloud applications.

Summary

Number of instances: 1

Software Image (AMI)

Amazon Linux 2023 AMI 2023.9.2... [read more](#)

Virtual server type (instance type)

t3.micro

Storage (volumes)

1 volume(s) - 8 GiB

Launch Instance

- 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.

Instance type

t3.micro

Family: t3 - 2 vCPU 1 GiB Memory Current generation: true

On-Demand Ubuntu base pricing: 0.0139 USD per Hour On-Demand SUSE base pricing: 0.0104 USD per Hour

On-Demand Linux base pricing: 0.0104 USD per Hour On-Demand RHEL base pricing: 0.0392 USD per Hour

On-Demand Windows base pricing: 0.0196 USD per Hour

Additional costs apply for AMIs with pre-installed software

Key pair (login)

Key pair name - required: DevVpc

Network settings

VPC - required: vpc-0155ed4cfdcc8d9d7 (DevVPC) 10.10.0.0/16

Subnet: subnet-0d876d6a88f32bda

Auto-assign public IP: Enable

Summary

Number of instances: 1

Software Image (AMI)

Amazon Linux 2023 AMI 2023.9.2... [read more](#)

Virtual server type (instance type)

t3.micro

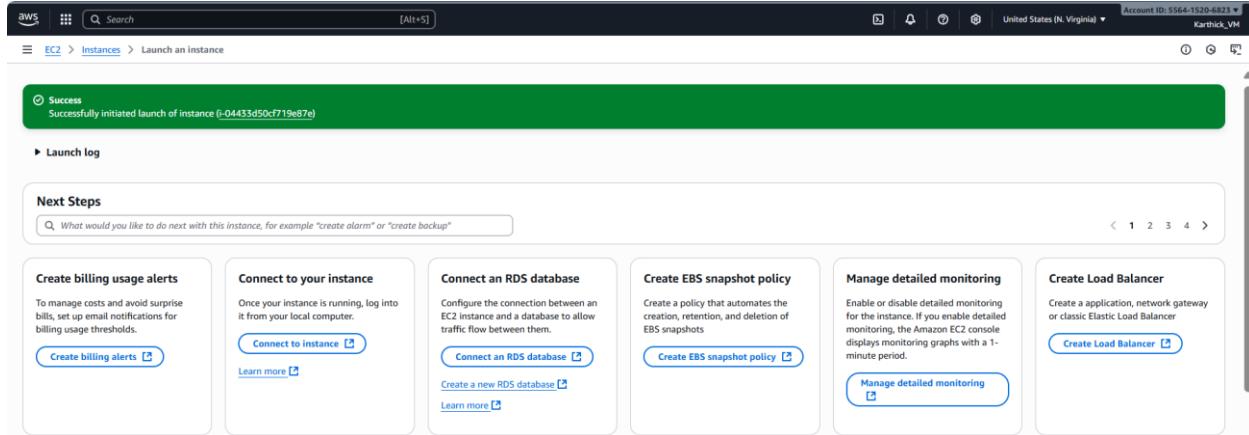
Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Launch Instance



- 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

Instances (2) <small>Info</small>										
<input type="text"/> Find Instance by attribute or tag (case-sensitive) All states										
	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP
	SubnetVM01	i-07bf919b2d6a458e9	Running	t3.micro	5/3 checks passed	View alarms +	us-east-1b	-	54.200.254.134	-
	HAVM01	i-04433d50cf719e87e	Running	t3.micro	Initializing	View alarms +	us-east-1a	-	54.89.152.89	-

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](#)
`bucket22`

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

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](#)

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.

Note: 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 access 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.

- 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.

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.

Note: 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

The screenshot illustrates the process of uploading files to an AWS S3 bucket.

Top Left: A file selection dialog from a Windows File Explorer window. The user has selected the file "index" located in the "Documents" folder. The dialog shows other files like "Custom Office Templates", "OneNote Notebooks", and "Accelerated Batch 1.3_Linux_Planner Track_V1.2".

Top Right: An AWS S3 console page showing the "Upload" interface. The user is selecting the destination bucket "bucketzz7".

Middle: The "Destination info" section of the upload dialog, which includes the destination URL "s3://bucketzz7". It also displays "Destination details" and "Permissions" sections.

Bottom: The AWS S3 "Upload: status" page. It shows a green success message: "Upload succeeded. For more information, see the Files and folders table." Below this, the "Summary" table indicates 1 succeeded file (1 file, 331.0 B) and 0 failed files (0 files, 0 B). The "Files and folders" tab is selected, showing a table with one item: "index.html" (331.0 B, text/html, Status: Succeeded).

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

Object overview

- Owner:** karthickvm710
- AWS Region:** US East (N. Virginia) us-east-1
- Last modified:** October 8, 2025, 16:52:00 (UTC+05:30)
- Size:** 331.0 B
- Type:** html
- Key:** index.html

S3 URI: s3://bucketzz7/index.html

Amazon Resource Name (ARN): arn:aws:s3:::bucketzz7/index.html

Entity tag (Etag): 103fc8a10d132ea584f72c06bd18b9d7

Object URL: https://bucketzz7.s3.us-east-1.amazonaws.com/index.html

Object management overview
The following bucket properties and object management configurations impact the behavior of this object.

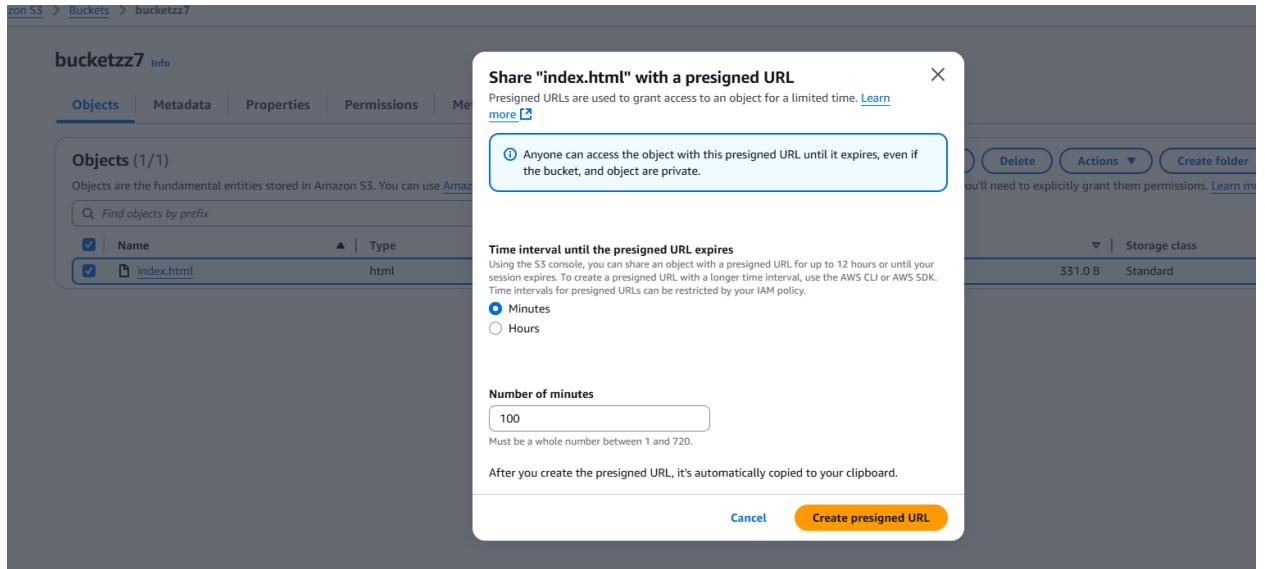
- When you try to access the file using the url you will be displayed with a error message stating access denied because , The bucket and object are private by default.

```

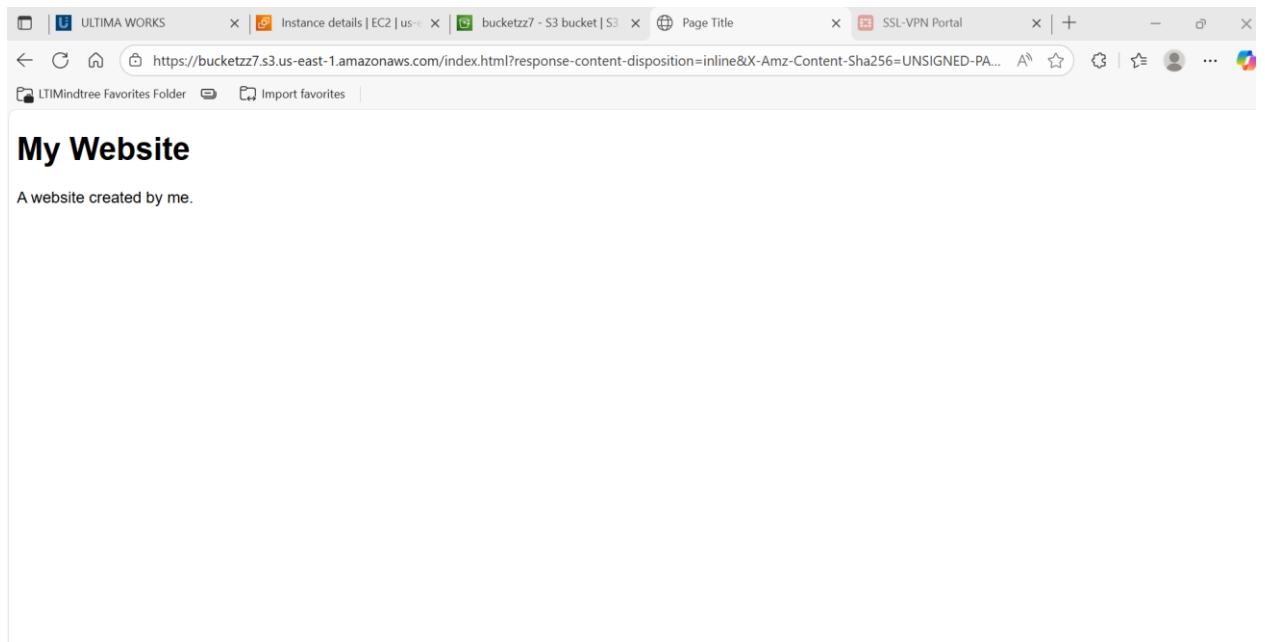
<Error>
  <Code>AccessDenied</Code>
  <Message>Access Denied</Message>
  <RequestId>ZYKYYH4R7BXQ5GJPN</RequestId>
  <HostId>er89k4rsOKZbx+RnAcCHPa81G941UBfRDQ9T/Una093BjuH5kMNOLFU/9dork4J6rdCjf/d4o0=</HostId>
</Error>

```

- 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.

