



BLACKBUCKS INTERNSHIP REPORT

**Cloud Connect(Multi-User AWS Architecture
with S3, Lambda, DynamoDB, and EC2)**

SUBMITTED BY

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Title:

CLOUDCONNECT: Multi-User AWS Architecture with S3, Lambda, DynamoDB, and EC2.

Abstract:

. The project CLOUDCONNECT is an innovative AWS cloud computing project that showcases the collaborative capabilities of different IAM users within an AWS environment. The features that are used collectively enable the implementation of a multi-tiered cloud infrastructure that supports data replication, triggers automated actions, and integrates with EC2 instances for dynamic data processing and management. This architecture uses several aws services such as EC2,S3,Dynamodb,IAM and Lambda. The features that are used are collectively enable the implementation of a multi-tiered cloud infrastructure that supports data replication, triggers automated actions, and integrates with EC2 instances for dynamic data processing and management



AWS PROJECT DOCUMENTATION

I. INTRODUCTION

CLOUD COMPUTING

Cloud, in the context of computing, refers to the practice of using remote servers hosted on the internet to store, manage, and process data, as well as provide various services. It involves accessing and utilizing resources and applications over the internet rather than relying solely on local infrastructure or hardware.

Cloud computing is a model of computing that involves the delivery of various computing services over the internet. Instead of relying on a local server or personal computer to store data and run applications, cloud computing utilizes remote servers hosted on the internet to store and process data, and to provide various services.

NEED OF CLOUD COMPUTING

Cloud computing offers several advantages compared to physical storage in ancient times. Here are a few key reasons why cloud computing is preferred over traditional physical storage methods:

- ❖ **Scalability:** Cloud storage offers easy and dynamic scalability, while physical storage had limited capacity.
- ❖ **Cost Efficiency:** Cloud computing operates on a pay-as-you-go model, eliminating upfront investments and enabling cost optimization.
- ❖ **Accessibility and Availability:** Cloud storage provides ubiquitous access from anywhere with an internet connection, ensuring high availability even during emergencies.
- ❖ **Data Preservation and Durability:** Cloud storage employs advanced preservation techniques, ensuring data durability and long-term preservation.
- ❖ **Collaboration and Sharing:** Cloud computing enables seamless collaboration and sharing of data among individuals and teams across different locations.
- ❖ **Security:** Cloud storage offers robust security measures to protect data from theft, damage, or unauthorized access.
- ❖ **Flexibility and Innovation:** Cloud computing provides a wide range of services beyond storage, enabling organizations to leverage advanced technologies and innovate without significant infrastructure investments.

AMAZON WEB SERVICES (AWS)

AWS, or Amazon Web Services, is a comprehensive cloud computing platform offered by Amazon.com. It provides a wide range of cloud services that enable businesses and individuals to build and deploy various applications and services in a flexible and scalable manner.

AWS offers a vast array of services across different categories, including:

- ❖ **Computing:**
AWS Elastic Compute Cloud (EC2) provides virtual servers in the cloud, allowing users to run applications and workloads. It offers a wide selection of instance types with different compute, memory, and storage capabilities.
- ❖ **Storage:**

AWS provides multiple storage options, including Amazon Simple Storage Service (**S3**) for object storage, Amazon Elastic Block Store (EBS) for persistent block storage, and Amazon Glacier for long-term archival storage. These services offer durability, scalability, and high availability for storing and retrieving data.

❖ **Databases:**

AWS offers various database services, such as Amazon Relational Database Service (RDS) for managed relational databases, Amazon DynamoDB for NoSQL databases, and Amazon Aurora for a MySQL and PostgreSQL-compatible database. These services handle database management tasks, such as backups, patching, and replication.

❖ **Networking:**

AWS provides networking services that enable users to establish secure and reliable connections. Amazon Virtual Private Cloud (VPC) allows users to create isolated virtual networks, and AWS Direct Connect offers dedicated network connections between on-premises environments and AWS.

❖ **Security and Identity:**

AWS offers a range of security services, including AWS Identity and Access Management (IAM) for managing access to AWS resources, AWS Key Management Service (KMS) for encryption key management, and AWS Certificate Manager for managing SSL/TLS certificates.

❖ **Analytics:**

AWS provides services for data analytics and processing, such as Amazon Redshift for data warehousing, Amazon Athena for interactive query analysis, and Amazon Kinesis for real-time data streaming and processing.

❖ **Artificial Intelligence (AI) and Machine Learning (ML):**

AWS offers services like Amazon SageMaker for building, training, and deploying machine learning models, Amazon Rekognition for image and video analysis, and Amazon Lex for building conversational interfaces.



II. ARCHITECTURE

Title:

CLOUDCONNECT: Multi-User AWS Architecture with S3, Lambda, DynamoDB, and EC2

Description:

CLOUDCONNECT is an innovative AWS cloud computing project that showcases the collaborative capabilities of different IAM users within an AWS environment. The features that are used collectively enable the implementation of a multi-tiered cloud infrastructure that supports data replication, triggers automated actions, and integrates with EC2 instances for dynamic data processing and management.

Overview:

The CLOUDCONNECT project illustrates the power of AWS IAM users and their ability to collaborate and leverage various AWS services, such as S3, Lambda, DynamoDB, and EC2, to create a comprehensive cloud computing solution.

IAM User 1: This user manages an S3 bucket and utilizes a Lambda function triggered by the root user to perform specific actions on the bucket.

IAM User 2: This user oversees a DynamoDB table that is connected to an S3 bucket through a Lambda function, enabling seamless data integration between the two services.

IAM User 3: This user maintains a separate S3 bucket that engages in cross-replication with the S3 bucket controlled by IAM User 1. This setup ensures data synchronization and redundancy across the two buckets.

IAM User 4: This user is responsible for an EC2 instance that establishes a connection with the DynamoDB table owned by IAM User 2. The EC2 instance utilizes the table for various operations, showcasing the dynamic nature of data utilization within the project

Data Replication Workflow:

1. Data Capture: The architecture begins by capturing the data from a s3 bucket to other resources in other IAM users.
2. Seamless Data Integration: With the help of lambda function the data in s3 bucket is transferred to table in Dynamodb.
3. Cross-Region Replication: To achieve cross-region replication, an S3 bucket in another region is configured as the replication destination for the primary S3 bucket.
4. Object Replication: The architecture automatically replicates objects from S3 Bucket 1 to S3 Bucket 2 in the different region. This ensures data redundancy, disaster recovery, and compliance with regional data residency requirements.

Benefits:

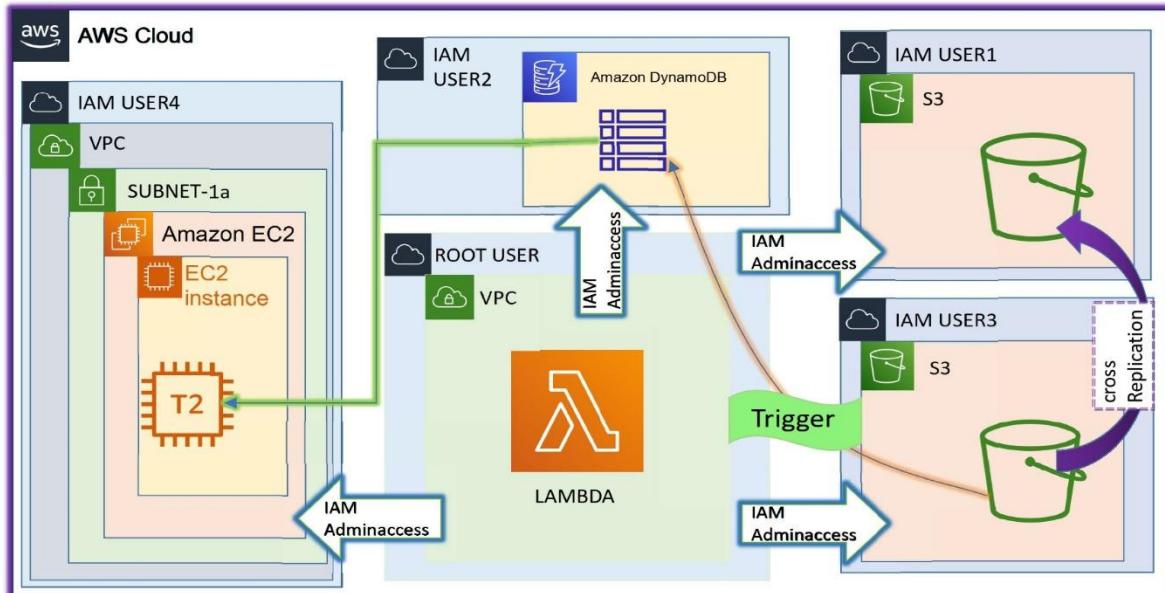
- ❖ Data Redundancy: The architecture offers robust data replication, ensuring redundancy across regions for improved data durability and availability.
- ❖ Disaster Recovery: Cross-region replication provides a disaster recovery solution, safeguarding critical data in case of region-specific outages or failures.
- ❖ Compliance and Data Residency: The architecture enables compliance with regional data residency requirements, ensuring data remains within specific geographic boundaries.
- ❖ Scalability: The ability to start or stop instances using Lambda functions provides agile and scalable resource management, matching compute capacity to demand.
- ❖ Cost Optimization: By automating instance start, stop, and termination processes, the architecture optimizes resource utilization and reduces unnecessary costs.

The "Cross-Region Data Replication and Instance Management Architecture with AWS Lambda" empowers organizations with efficient data replication, disaster recovery capabilities, and streamlined instance management, enabling them to achieve high availability, data protection, and cost efficiency.

Note: The specific implementation details and configuration settings will depend on the chosen AWS services and tools, the desired level of data replication, and any specific security or compliance requirements of the organization.

Architecture:

The Cross-Region Data Replication and Instance Management Architecture is:



III SERVICES INCLUDED IN ARCHITECTURE

AWS provides a wide variety of services to develop various real-time architectures. Here are the services included in our architecture:

1. Amazon EC2 (Elastic Compute Cloud)
2. Amazon VPC (Virtual Private Cloud)
3. AWS IAM (Identity and Access Management)
4. Amazon S3 (Simple Storage Service)
5. AWS Lambda
6. AWS Dynamodb



The project "Multi-tiered Cloud Infrastructure with AWS IAM: Enabling Data Replication, Lambda Triggers, and EC2 Integration" leverages several AWS features and services to achieve its goals. Here are the key features provided in this project:

AWS Identity and Access Management (IAM): IAM allows for the creation and management of different IAM users with varying access permissions. It enables secure control and management of user identities and access to AWS resources.

Amazon S3 (Simple Storage Service): S3 is a scalable object storage service used for storing and retrieving data. In this project, S3 is utilized for creating multiple S3 buckets that facilitate data storage and replication.

AWS Lambda: Lambda is a serverless compute service that enables running code without provisioning or managing servers. In this project, Lambda functions are used for triggering automated actions and processing data based on events from S3 buckets.

Amazon DynamoDB: DynamoDB is a fully managed NoSQL database service. The second IAM user in the project uses DynamoDB to create and manage a database table that stores data. DynamoDB enables seamless integration with other services like Lambda.

Amazon EC2 (Elastic Compute Cloud): EC2 is a web service that provides resizable compute capacity in the cloud. The fourth IAM user in the project utilizes EC2 to create and manage an EC2 instance that is connected to the DynamoDB table.

Data Replication: The project involves cross-replication between S3 buckets owned by different IAM users. This feature allows for data redundancy, backup, and synchronization between the S3 buckets.

Lambda Triggers: Lambda functions are triggered by events on the S3 buckets. This feature enables automation and the execution of custom code or actions in response to specific events occurring in the S3 buckets.

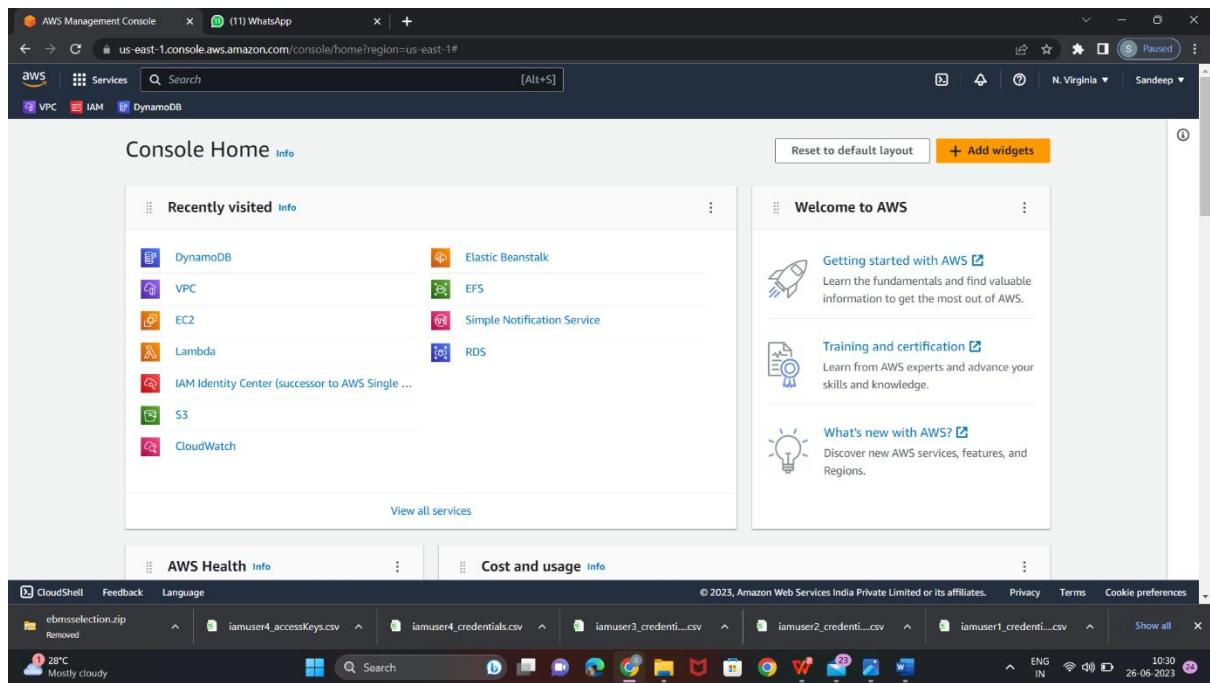
Integration and Interoperability: The project showcases the integration between different AWS services. Specifically, it demonstrates the connection between S3 buckets, Lambda functions, DynamoDB tables, and EC2 instances, enabling seamless data flow and application functionality.

IV IMPLEMENTATION

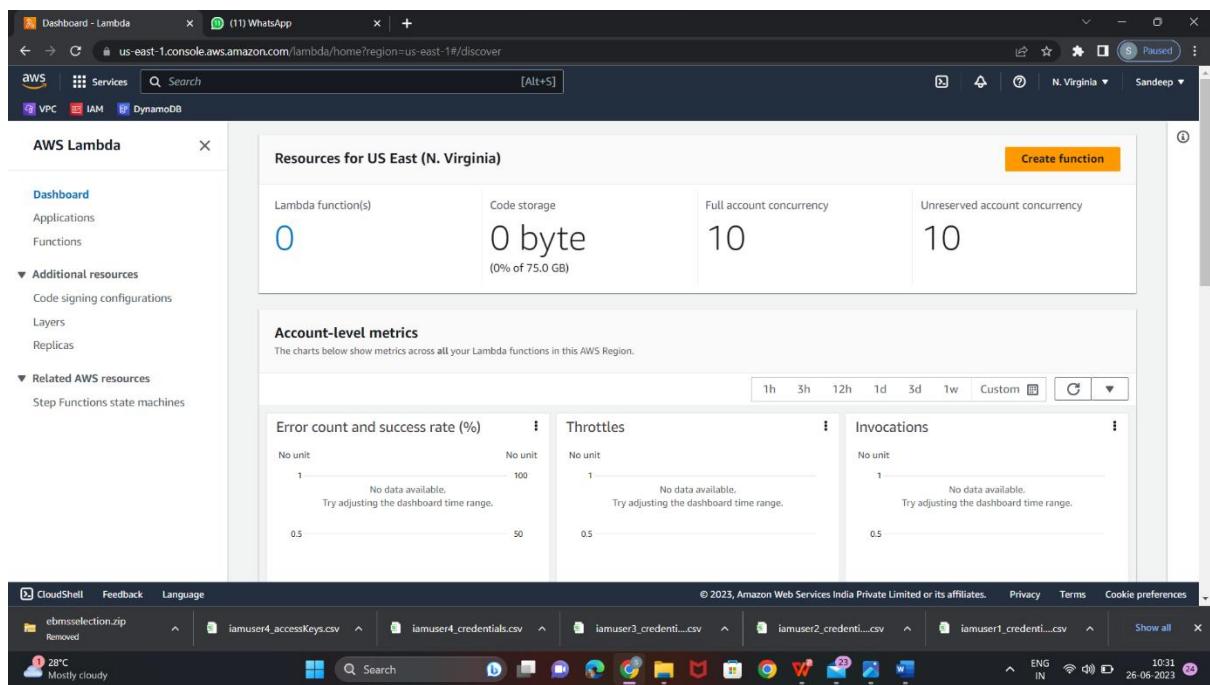
The implementation of the architecture is as follows:

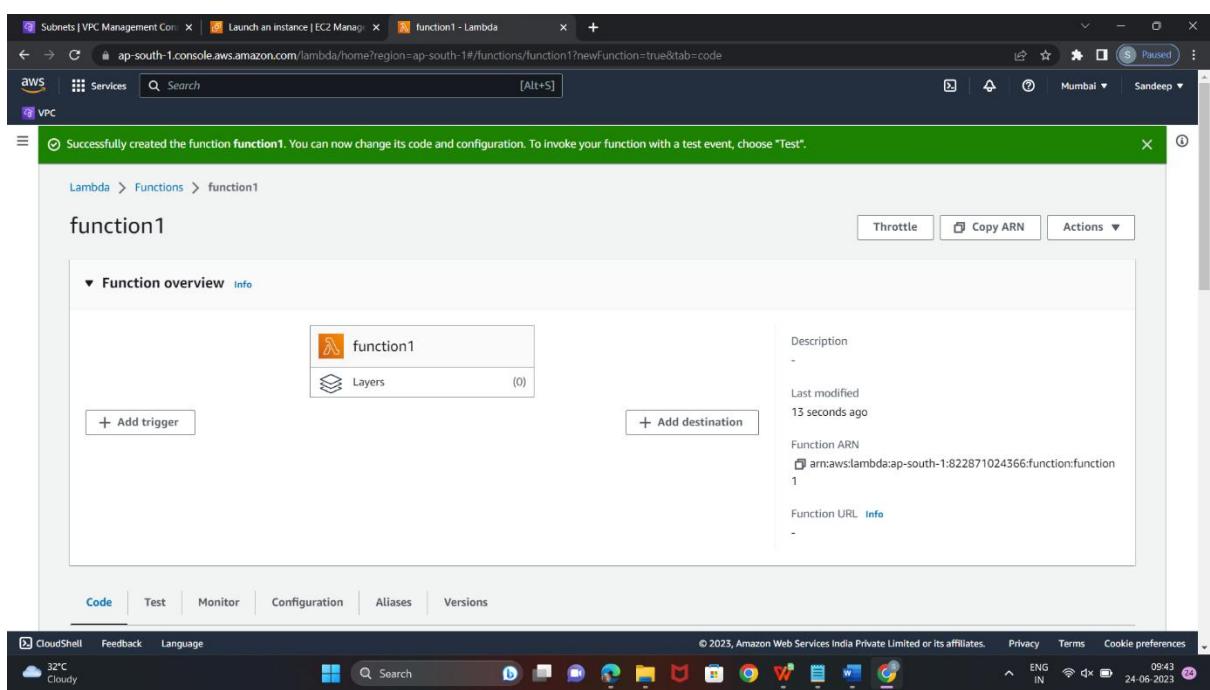
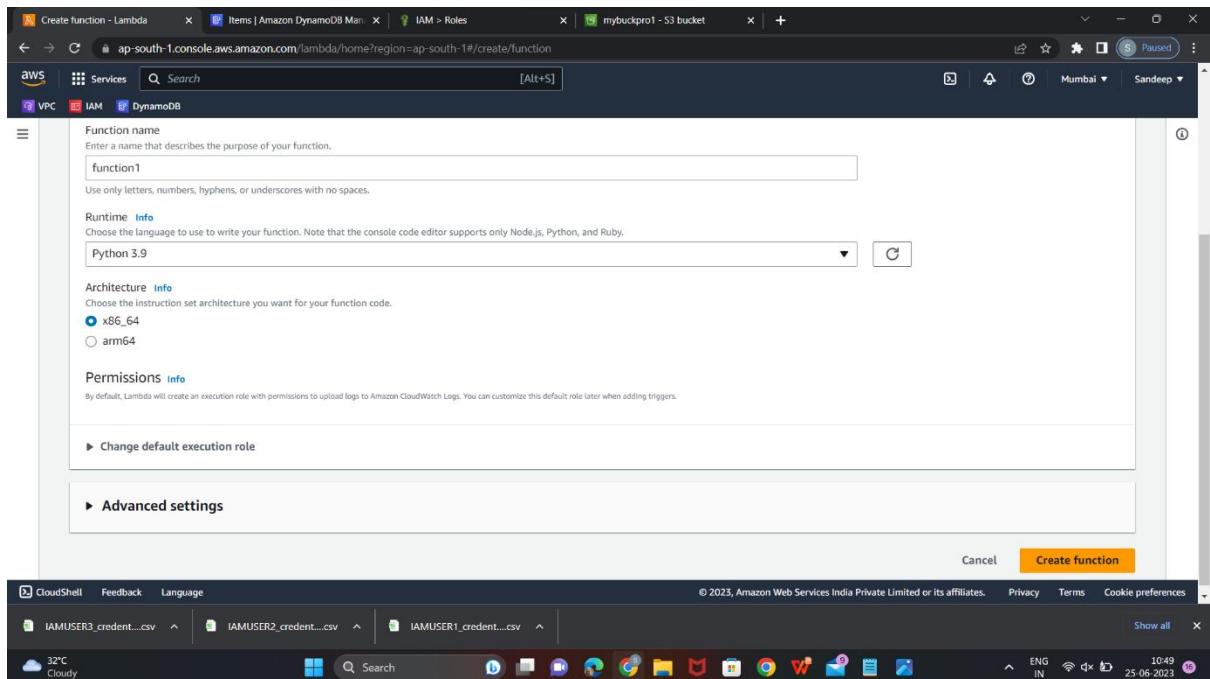
Step 1: Create Lambda Function in root user

Login into your AWS account and open lambda

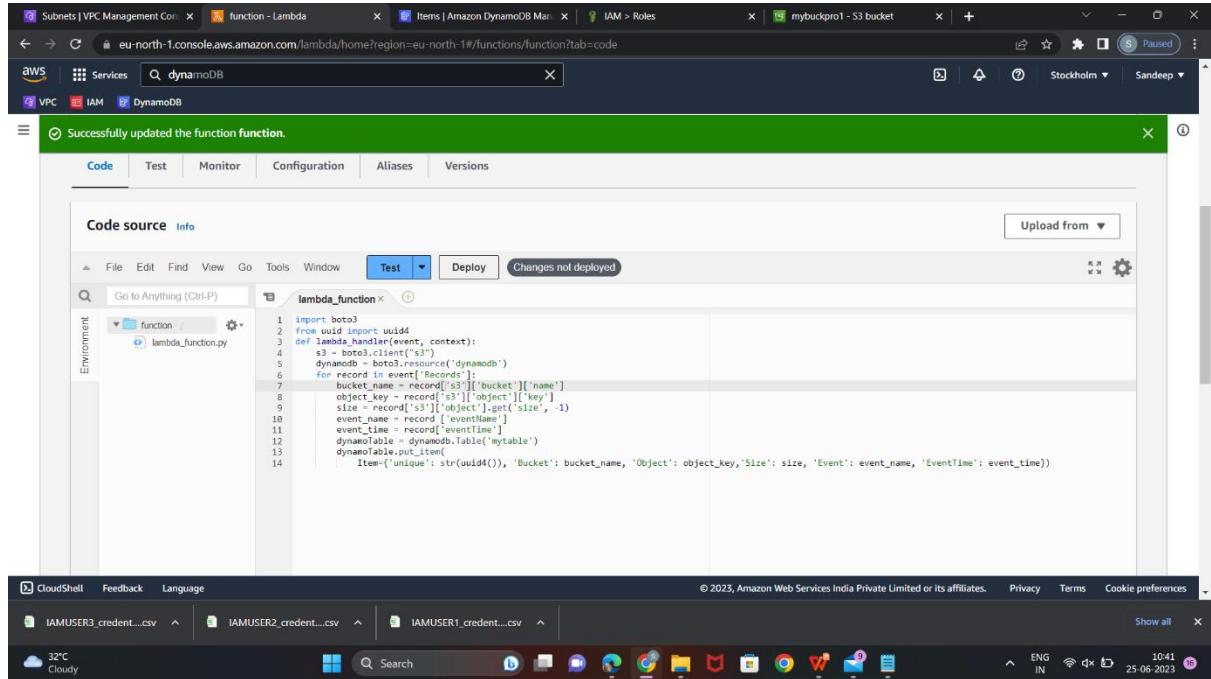


Create function in aws Lambda

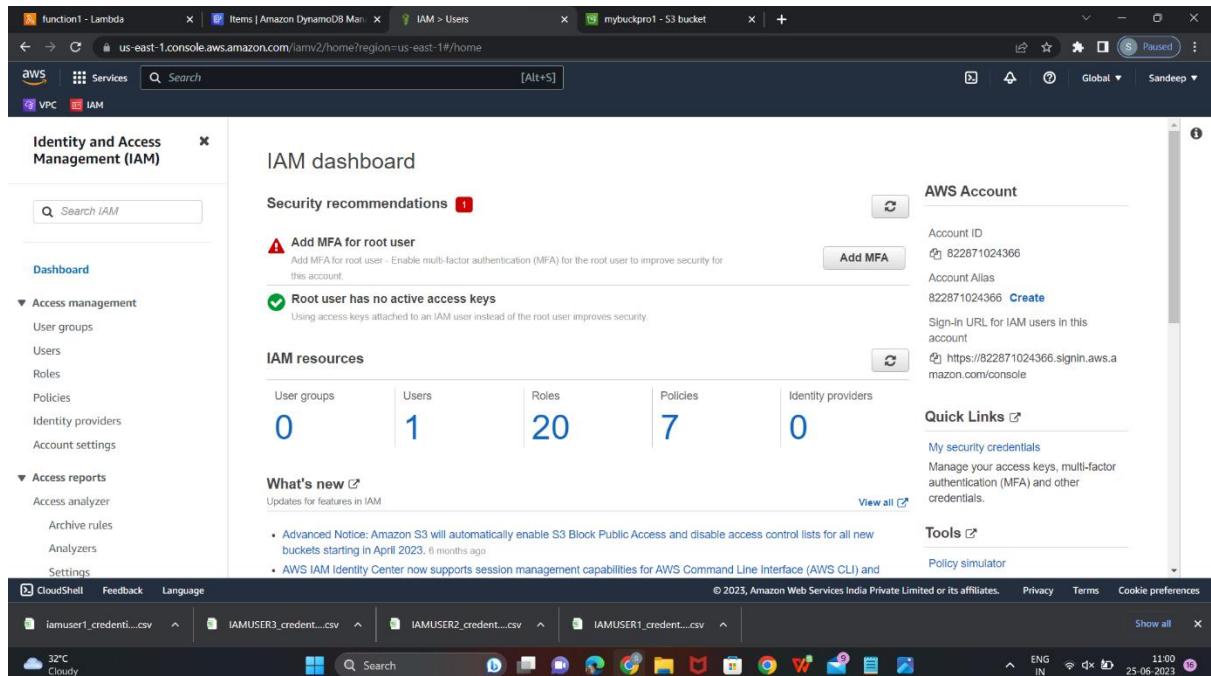




After the function creation go to code and enter trigger code and add table name as dynamo table name and partition key as unique



Step 2: Create an IAM user from root user as iamuser1 and provide admin access



The screenshot shows the 'Create user' wizard at Step 2: Set permissions. The user 'iamuser1' has been created and assigned the following AWS managed policies:

Name	Type	Used as
AdministratorAccess	AWS managed - job function	Permissions policy
AmazonS3FullAccess	AWS managed	Permissions policy
AWSLambda_FullAccess	AWS managed	Permissions policy
AmazonDynamoDBFullAccess	AWS managed	Permissions policy
IAMUserChangePassword	AWS managed	Permissions policy

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.

Cancel Previous Create user

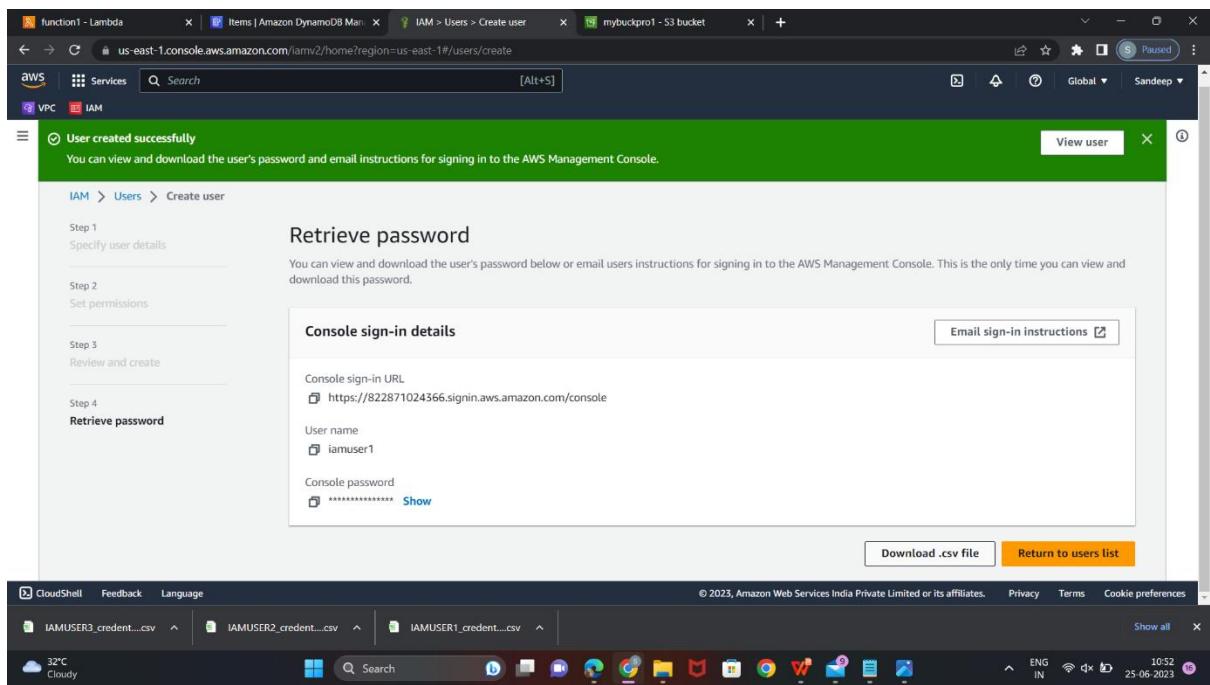
The screenshot shows the 'Create user' wizard at Step 3: Review and create. The user 'iamuser1' has been created with the following details:

User name	Console password type	Require password reset
iamuser1	Autogenerated	Yes

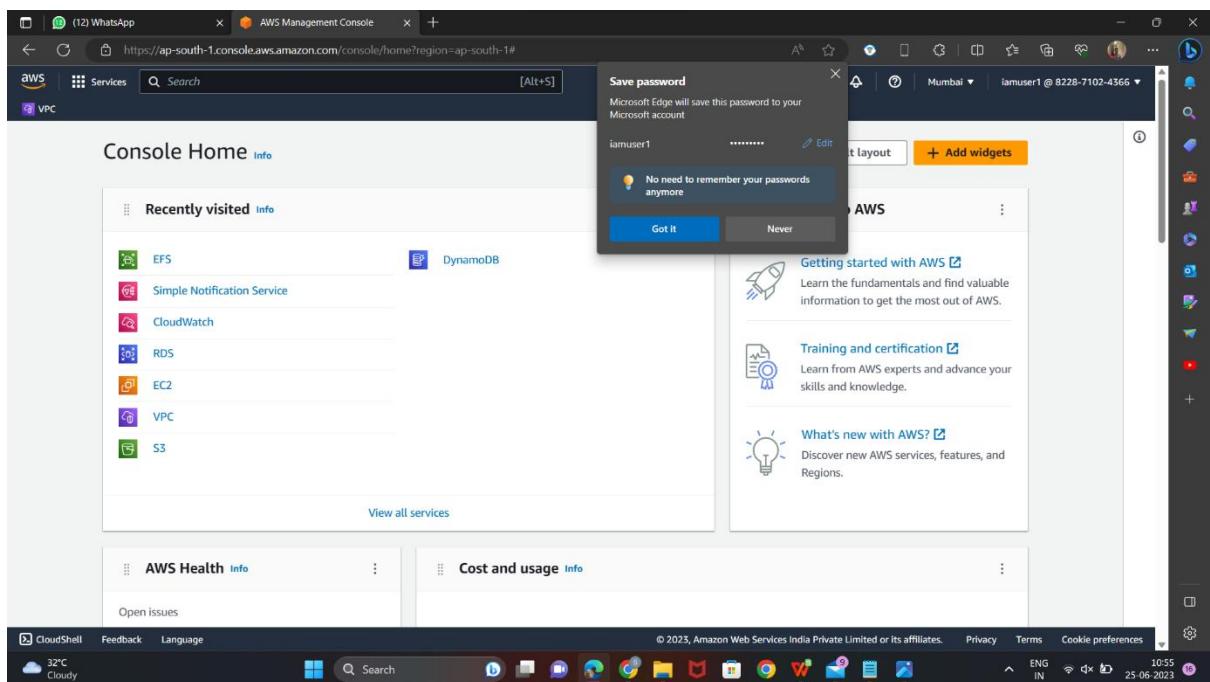
Permissions summary

Name	Type	Used as
AdministratorAccess	AWS managed - job function	Permissions policy
AmazonS3FullAccess	AWS managed	Permissions policy
AWSLambda_FullAccess	AWS managed	Permissions policy
AmazonDynamoDBFullAccess	AWS managed	Permissions policy
IAMUserChangePassword	AWS managed	Permissions policy

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Step 3: After Creation login into iamuser1 and create a table in Dynamodb



Open Dynamodb and click on create table

The screenshot shows the Amazon DynamoDB service page in the AWS Management Console. The left sidebar has a 'DynamoDB' section with options like Dashboard, Tables, Update settings, Explore items, PartiQL editor, Backups, Exports to S3, Imports from S3, Reserved capacity, and Settings. Below that is a 'DAX' section with Clusters, Subnet groups, Parameter groups, and Events. At the bottom of the sidebar are CloudShell, Feedback, and Language links. The main content area features the 'Amazon DynamoDB' logo and the tagline 'A fast and flexible NoSQL database service for any scale'. It includes a 'Get started' section with a 'Create table' button and a 'Pricing' section with information about charges. A video player titled 'What is Amazon DynamoDB?' is also present. The top navigation bar shows the AWS logo, Services, a search bar, and user information (Mumbai, iamuser1 @ 8228-7102-4366). The bottom of the screen shows a Windows taskbar with various pinned icons and system status.

The screenshot shows the 'Create table' wizard in the Amazon DynamoDB console. The first step, 'Table details', is displayed. It requires a 'Table name' (set to 'mytable') and a 'Partition key' (set to 'unique', type String). There is also a 'Sort key - optional' field (empty). The second step, 'Table settings', is partially visible at the bottom. The top navigation bar and taskbar are identical to the previous screenshot.

The screenshot shows the 'Create table' wizard in the AWS DynamoDB console. The first step, 'Default settings', is selected. It displays basic table configuration options:

Setting	Value	Editable after creation
Capacity mode	Provisioned	Yes
Provisioned read capacity	5 RCU	Yes
Provisioned write capacity	5 WCU	Yes
Auto scaling	On	Yes
Local secondary indexes	-	No
Global secondary indexes	-	Yes
Encryption key management	Owned by Amazon DynamoDB	Yes
Table class	DynamoDB Standard	Yes
Deletion protection	Off	Yes

Below the table, there is a note: "These are the default settings for your new table. You can change some of these settings after creating the table."

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The screenshot shows the 'Create table' wizard in the AWS DynamoDB console. The second step, 'Tags', is selected. It allows users to add tags to the resource:

Tags
Tags are pairs of keys and optional values, that you can assign to AWS resources. You can use tags to control access to your resources or track your AWS spending.

No tags are associated with the resource.

Add new tag

You can add 50 more tags.

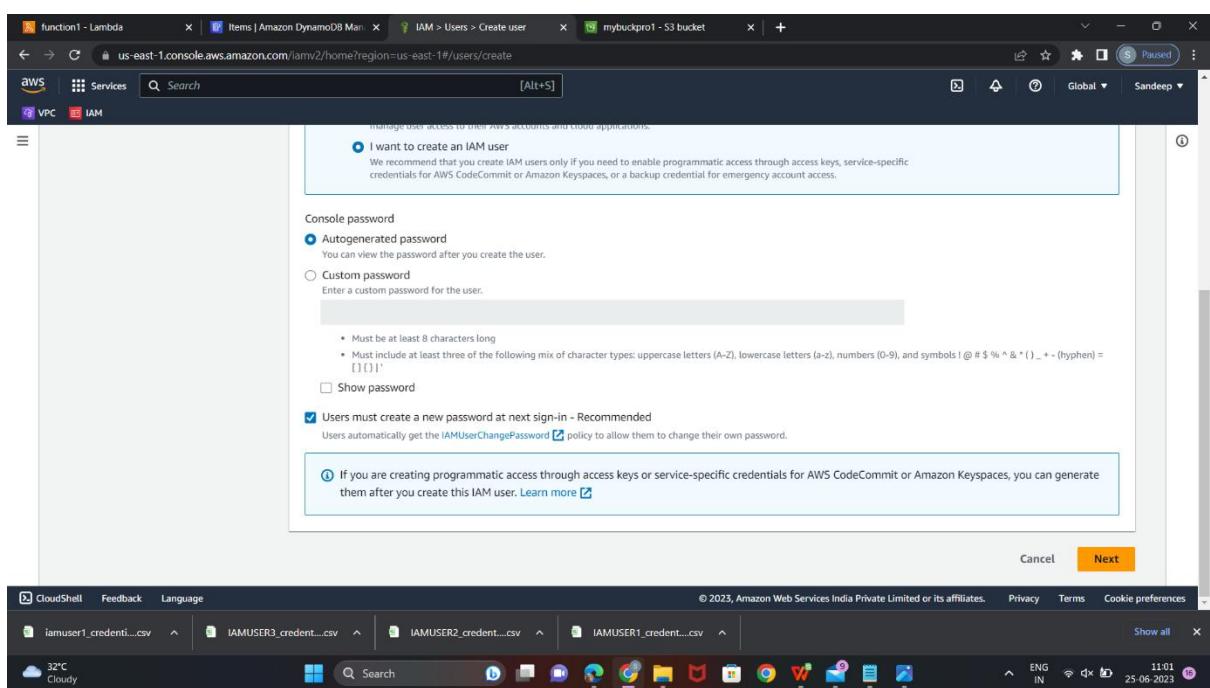
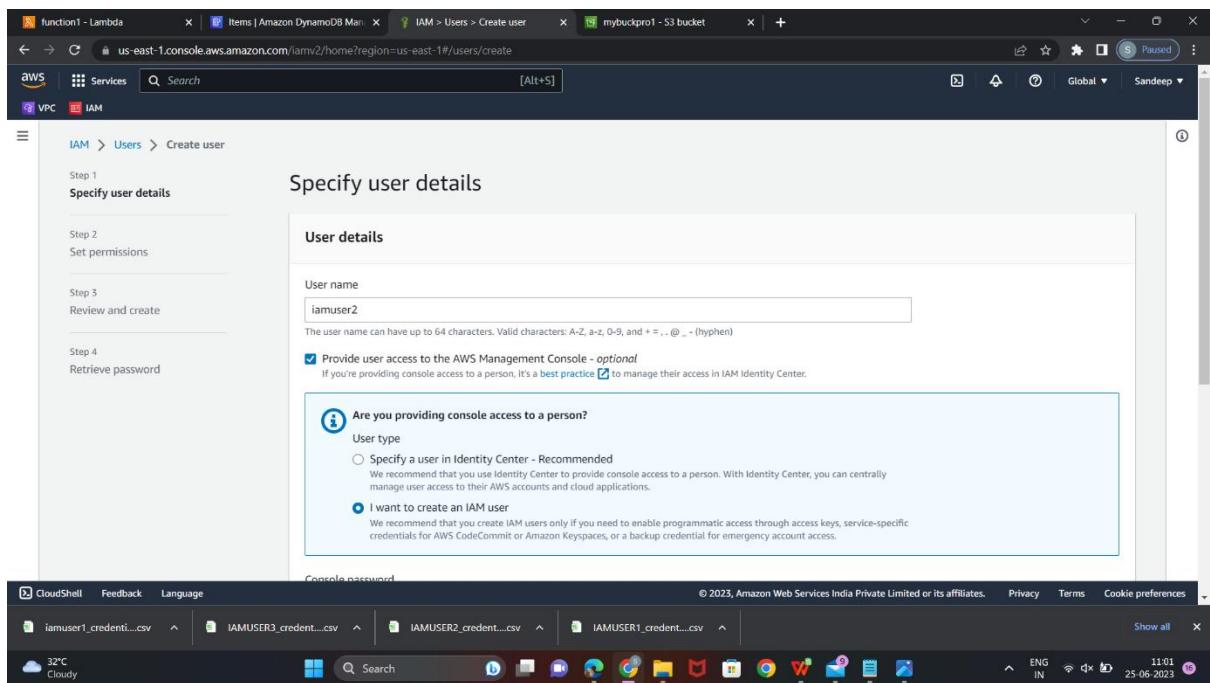
At the bottom right are 'Cancel' and 'Create table' buttons.

The browser status bar at the bottom shows: CloudShell, Feedback, Language, © 2023, Amazon Web Services India Private Limited or its affiliates., Privacy, Terms, Cookie preferences, ENG IN, 10:59, 25-06-2023.

The screenshot shows the AWS DynamoDB console. A success message at the top states, "The mytable table was created successfully." The left sidebar has a "Tables" section with options like "Update settings", "Explore items", and "Create table". The main area displays a table named "mytable" with one item: "Status: Active", "Partition key: unique (\$)", "Sort key: -", "Indexes: 0", "Deletion protection: Off", "Read capacity mode: Provisioned with auto scaling (5)", and "Write capacity mode: Provisioned with auto scaling (5)".

Step 4: Create an another IAM user as iamuser2 and give admin access

The screenshot shows the AWS IAM console. The left sidebar has sections for "Identity and Access Management (IAM)" like "User groups", "Users", "Roles", "Policies", "Identity providers", and "Account settings". The main area shows a table of users with one entry: "User name: iamuser1", "Groups: None", "Last activity: Never", and "MFA: None".



Set permissions

Add user to an existing group or create a new one. Using groups is a best-practice way to manage user's permissions by job function. [Learn more](#)

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](#)

Set permissions boundary - optional

Cancel Previous Next

PERMISSIONS OPTIONS

Permissions policies (1109)
Choose one or more policies to attach to your new user.

Policy name	Type	Attached entities
AccessAnalyzerServiceRolePolicy	AWS managed	0
AdministratorAccess	AWS managed - job function	0
AdministratorAccess-Amplify	AWS managed	0
AdministratorAccess-AWSElasticBea...	AWS managed	0
AlexaForBusinessDeviceSetup	AWS managed	0

Filter by Type
Search All types

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The screenshot shows the 'Create user' step in the AWS IAM console. The 'Used as' column lists 'Permissions policy' for all roles except 'AdministratorAccess'. The 'Tags - optional' section shows no tags associated with the resource.

Name	Type	Used as
AdministratorAccess	AWS managed - job function	Permissions policy
AmazonS3FullAccess	AWS managed	Permissions policy
AmazonDynamoDBFullAccess	AWS managed	Permissions policy
AWSLambda_FullAccess	AWS managed	Permissions policy
IAMUserChangePassword	AWS managed	Permissions policy

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.

Cancel Previous Create user

The screenshot shows the 'User created successfully' message in the top bar. The 'Retrieve password' section displays the console sign-in URL, user name, and console password. Buttons for 'Download .csv file' and 'Return to users list' are at the bottom.

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

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://822871024366.signin.aws.amazon.com/console

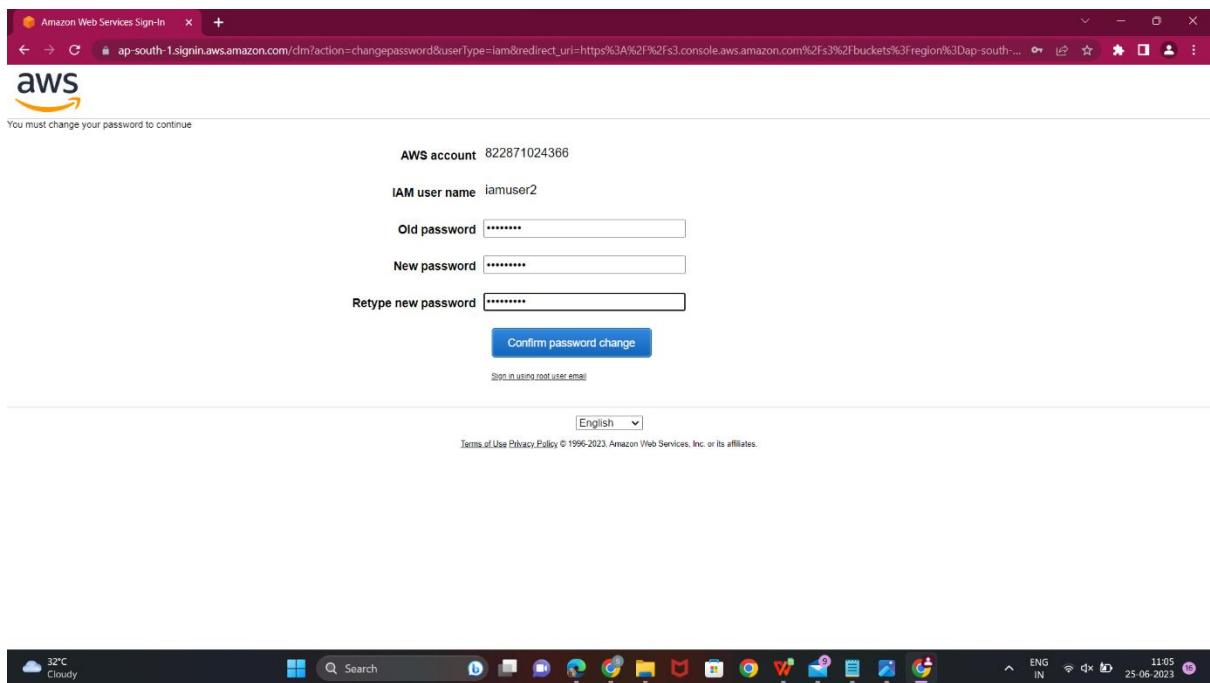
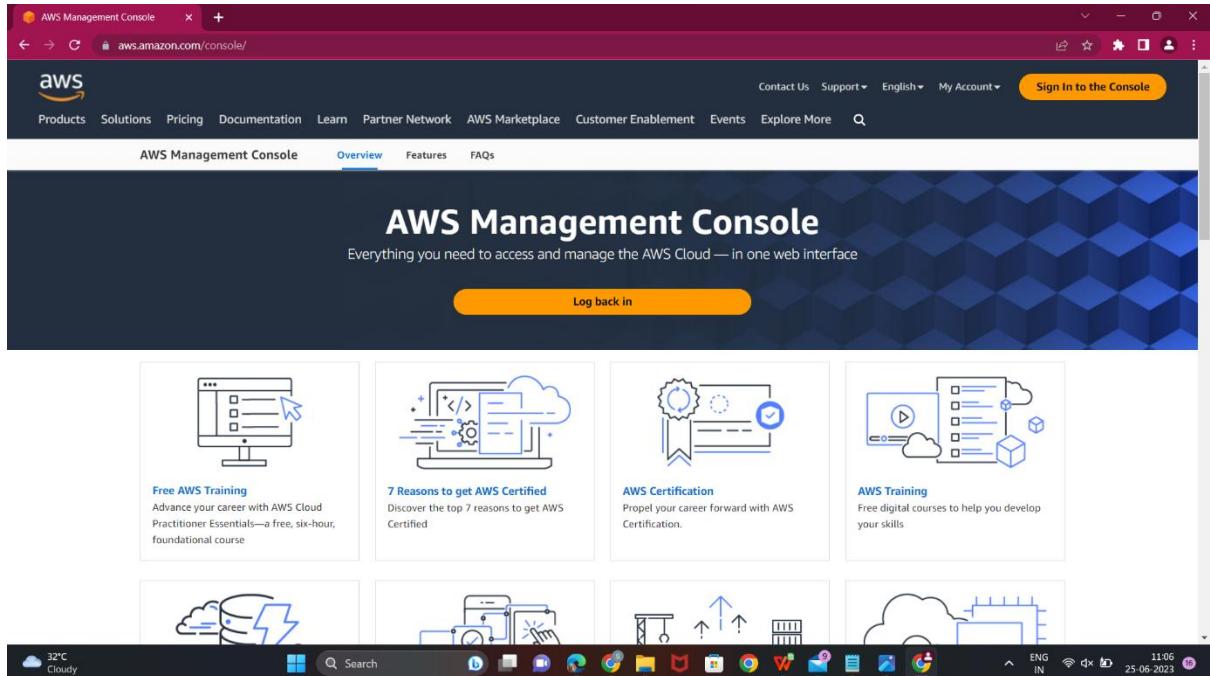
User name
iamuser2

Console password
***** Show

Email sign-in instructions

Download .csv file Return to users list

Step 5: After login as iamuser2 Create an S3 Bucket as mybuckpro2



The screenshot shows the AWS Management Console Home page. At the top, there's a navigation bar with tabs for AWS, Services, and VPC. A search bar is present, along with a [Alt+S] keyboard shortcut. On the right, it shows the user is signed in as iamuser2 @ 8228-7102-4366 from Sydney. Below the navigation is a "Console Home" section with a "Recently visited" list containing VPC, S3, EC2, RDS, CloudWatch, Simple Notification Service, EFS, and DynamoDB. To the right is a "Welcome to AWS" panel with sections for "Getting started with AWS", "Training and certification", and "What's new with AWS?". Below these are "AWS Health" and "Cost and usage" links. The bottom of the screen shows a taskbar with various application icons and system status indicators.

The screenshot shows the S3 Management Console Home page. At the top, there's a navigation bar with tabs for AWS, Services, and VPC. A search bar is present, along with a [Alt+S] keyboard shortcut. On the right, it shows the user is signed in as iamuser2 @ 8228-7102-4366 from Global. Below the navigation is an "Amazon S3" sidebar with links for Buckets, Access Points, Object Lambda Access Points, Multi-Region Access Points, Batch Operations, IAM Access Analyzer for S3, Block Public Access settings for this account, Storage Lens Dashboards, AWS Organizations settings, Feature spotlight, and AWS Marketplace for S3. The main content area displays an "Account snapshot" with total storage of 222.0 B, object count of 2, and average object size of 111.0 B. It also includes a note about enabling advanced metrics. Below this is a "Buckets (2)" section with a table showing two buckets: "elasticbeanstalk-ap-south-1-822871024366" (created June 19, 2023) and "mybuckpro" (created June 25, 2023). The table has columns for Name, AWS Region, Access, and Creation date. The bottom of the screen shows a taskbar with various application icons and system status indicators.

The screenshot shows the 'Create Bucket' page in the AWS Management Console. In the 'General configuration' section, the bucket name is set to 'mybuckpro2'. The 'AWS Region' is set to 'Asia Pacific (Mumbai) ap-south-1'. Under 'Object Ownership', the 'ACLs disabled (recommended)' option is selected. The status bar at the bottom indicates it's a CloudShell session.

The screenshot shows the continuation of the 'Create Bucket' page. It displays advanced access control settings under 'Storage Class and Access Control'. The 'Block all public access' checkbox is checked. A warning message states: '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 verified use cases such as static website hosting.' A checkbox for acknowledging this warning is present. The status bar at the bottom indicates it's a CloudShell session.

The screenshot shows the AWS S3 Bucket creation wizard. In the 'Access Control' section, three checkboxes are listed:

- 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.

A warning message in a box states: "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 verified use cases such as static website hosting." A checkbox below it is checked: "I acknowledge that the current settings might result in this bucket and the objects within becoming public."

In the 'Bucket Versioning' section, it is described as a means of keeping multiple variants of an object in the same bucket. It includes a link to 'Learn more'. Below, there is a radio button for 'Disable' and another for 'Enable'.

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The screenshot shows the AWS S3 Bucket creation wizard. In the 'Default encryption' section, it states: "Server-side encryption is automatically applied to new objects stored in this bucket." It includes an 'Info' link and a list of encryption types:

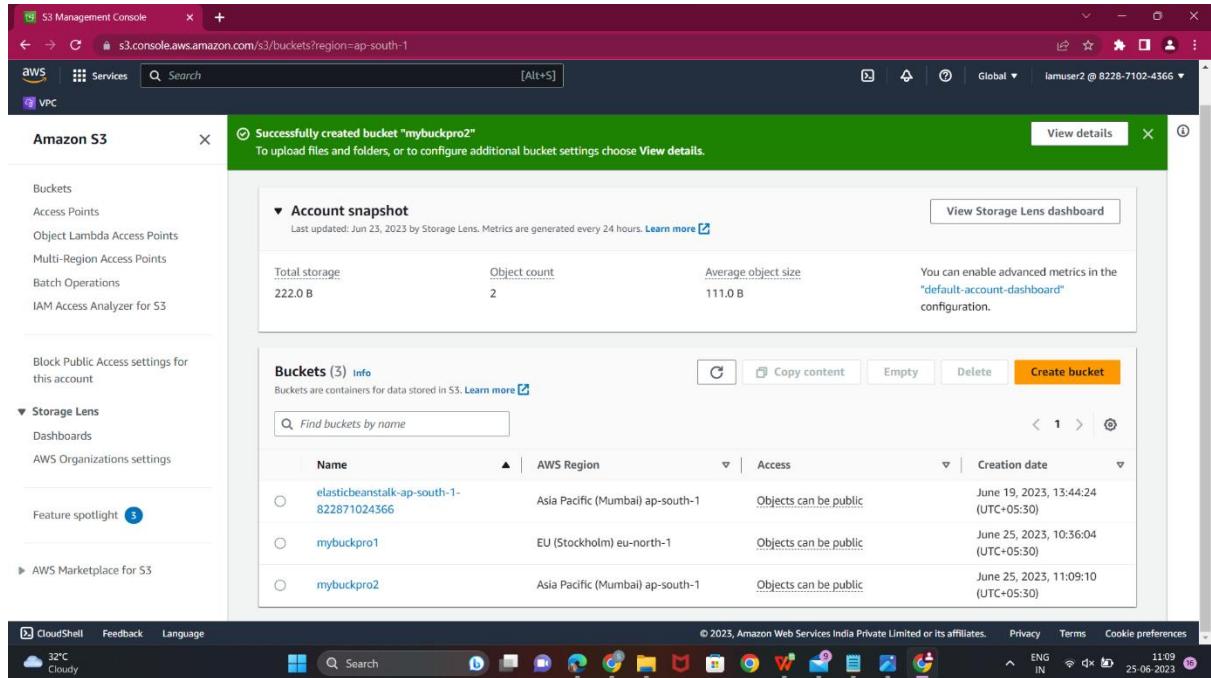
- Server-side encryption with Amazon S3 managed keys (SSE-S3)
- Server-side encryption with AWS Key Management Service keys (SSE-KMS)
- Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)
Secure your objects with two separate layers of encryption. For details on pricing,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

In the 'Bucket Key' section, it notes: "Using an S3 Bucket Key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSSE-KMS." It includes a 'Learn more' link and a radio button for 'Disable' or 'Enable'.

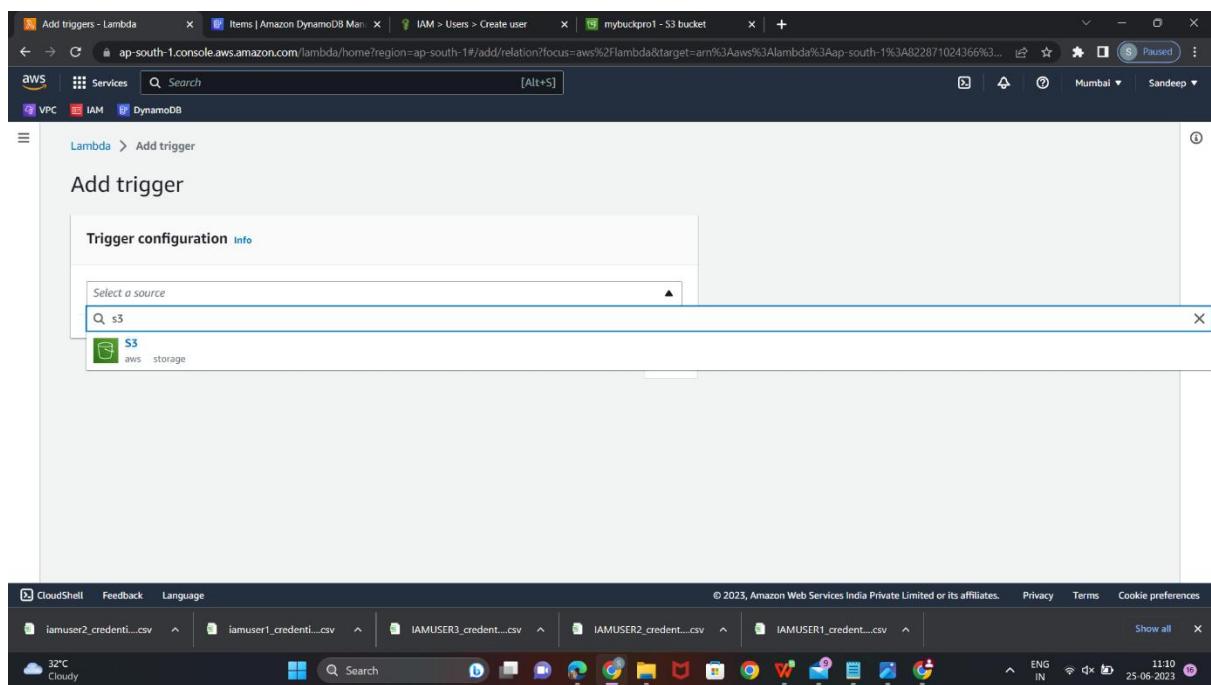
A 'Advanced settings' section is partially visible.

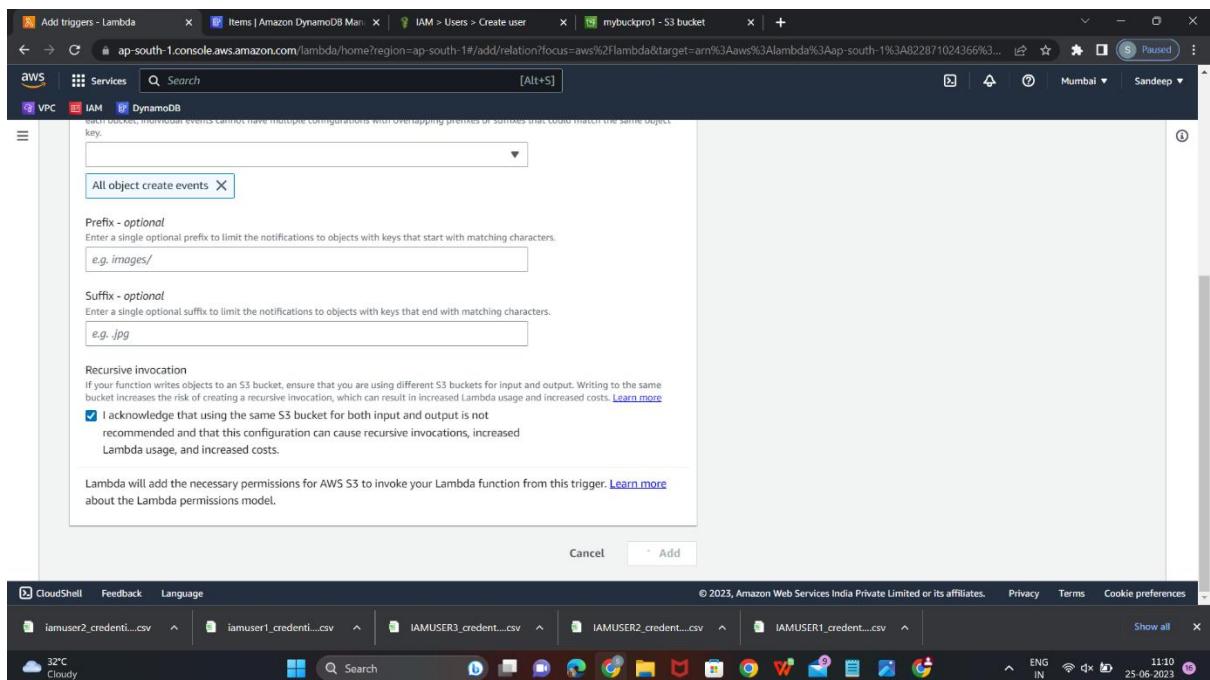
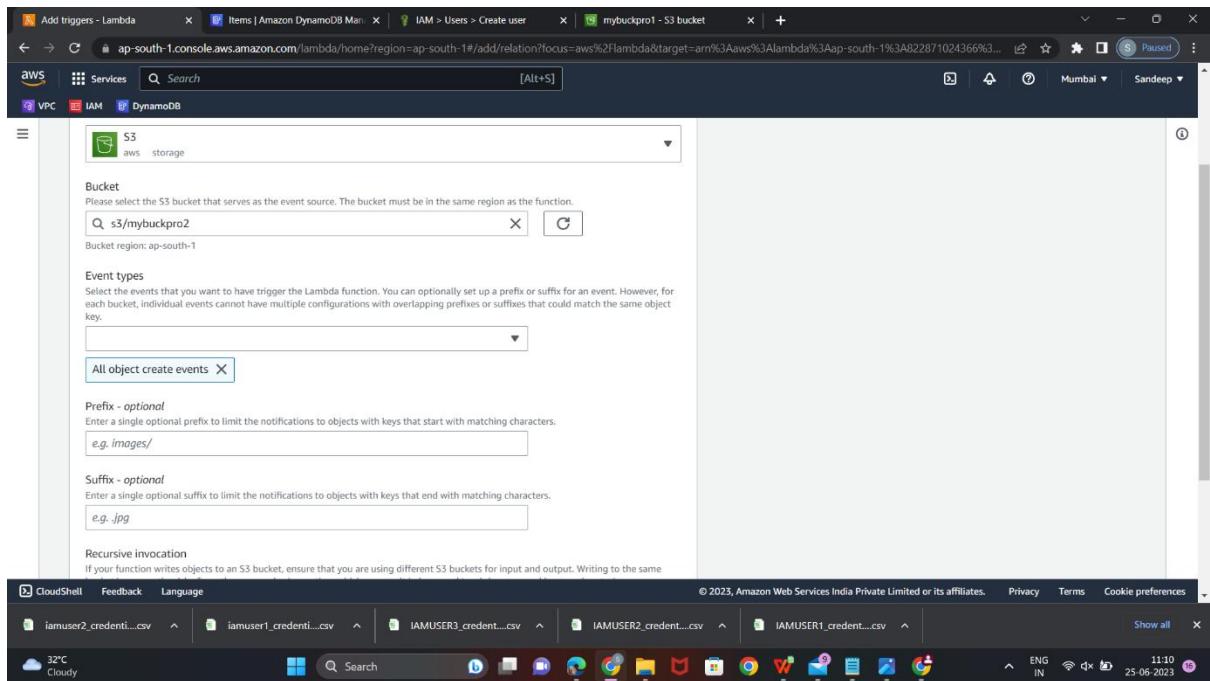
At the bottom, a note says: "After creating the bucket, you can upload files and folders to the bucket, and configure additional bucket settings." There are 'Cancel' and 'Create bucket' buttons.

At the very bottom, the status bar shows: CloudShell, Feedback, Language, © 2023, Amazon Web Services India Private Limited or its affiliates, Privacy, Terms, Cookie preferences, ENG IN, 11:09, 25-06-2023.



Step 6: Goto root user and add S3 bucket in trigger in Lambda function

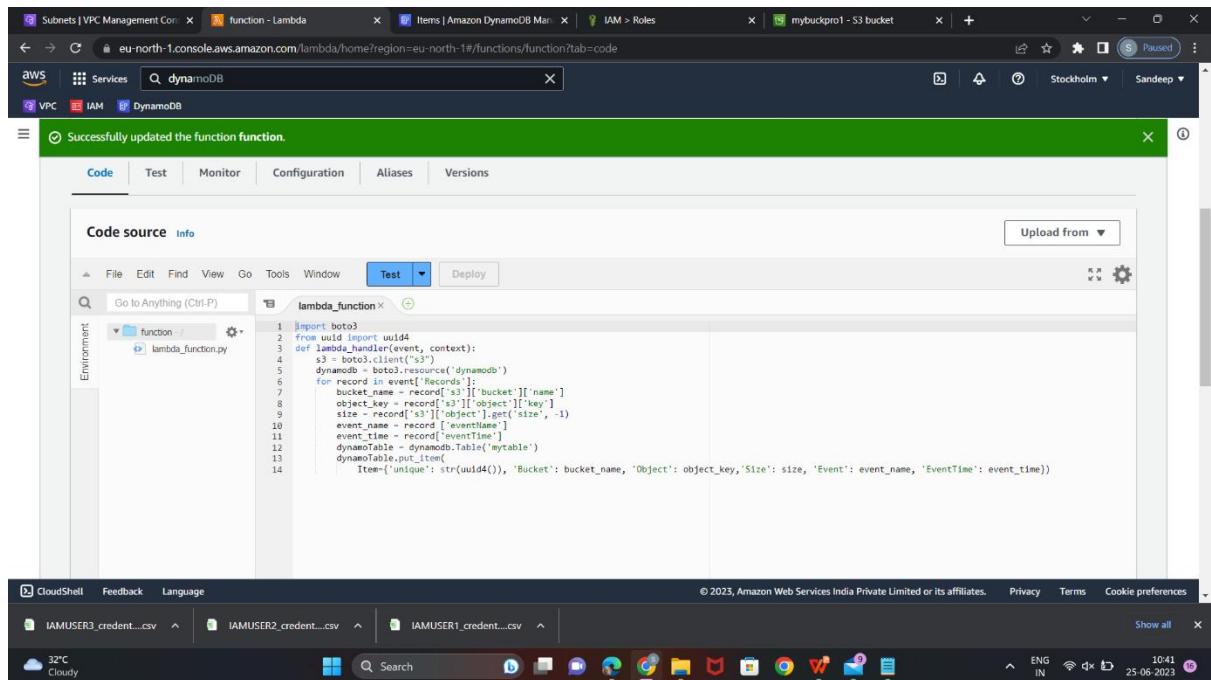




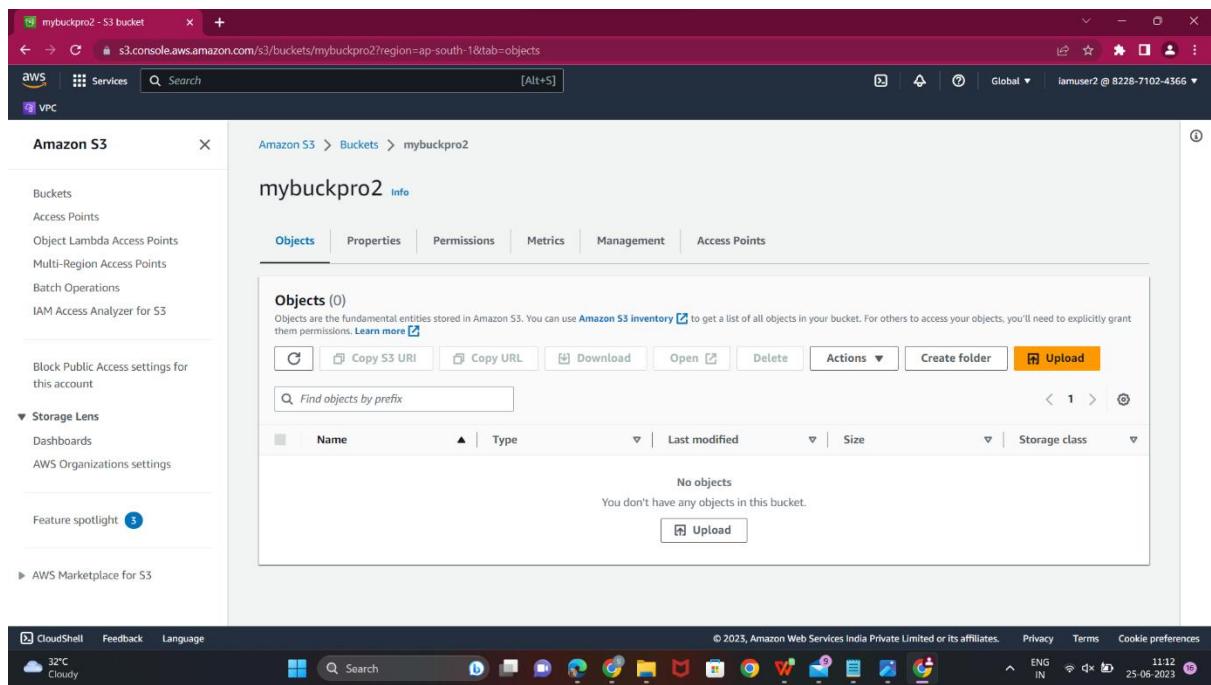
The screenshot shows the AWS Lambda console. In the top navigation bar, tabs include 'function1 - Lambda', 'Items | Amazon DynamoDB Man...', 'IAM > Users > Create user', and 'mybuckpro1 - S3 bucket'. The main content area shows 'Lambda > Functions > function1'. A success message box states: 'The trigger mybuckpro2 was successfully added to function function1. The function is now receiving events from the trigger.' Below this, the 'Function overview' section displays the function name 'function1', its layers (0), and triggers. One trigger is listed: 'S3' with the ARN 'arn:aws:s3:::mybuckpro2'. Other options include '+ Add destination' and '+ Add trigger'. To the right, there's a 'Description' field, 'Last modified' (21 minutes ago), 'Function ARN' ('arn:aws:lambda:ap-south-1:822871024366:function:function1'), and a 'Function URL' link.

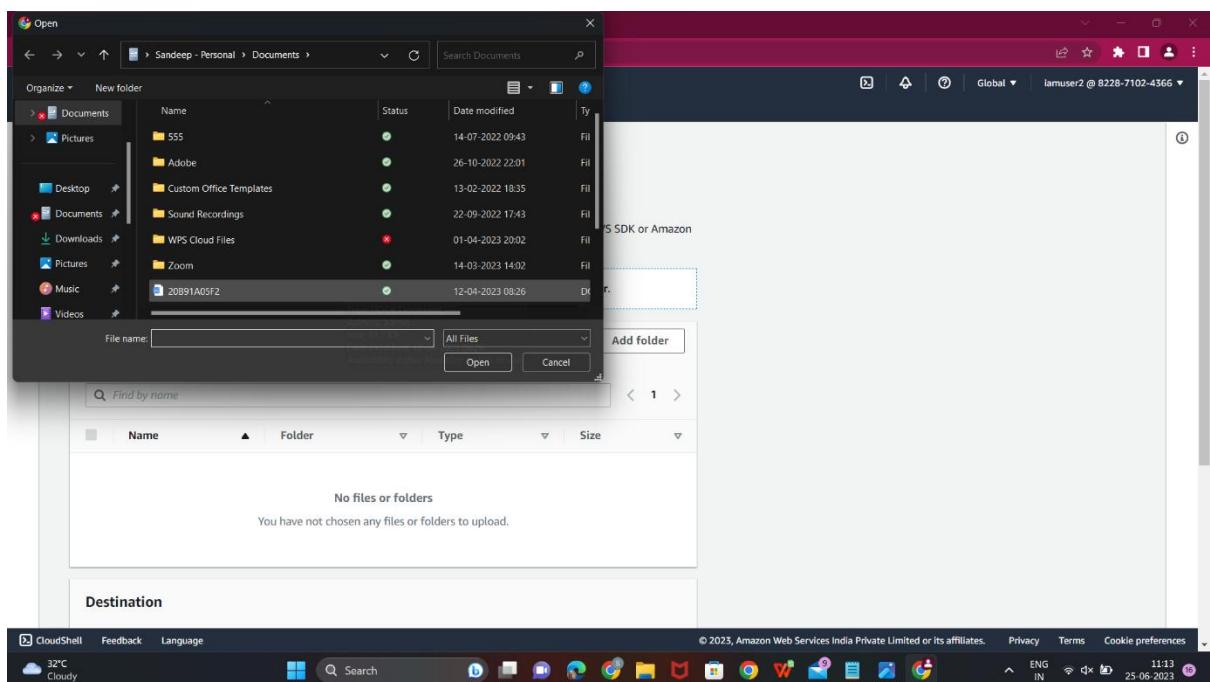
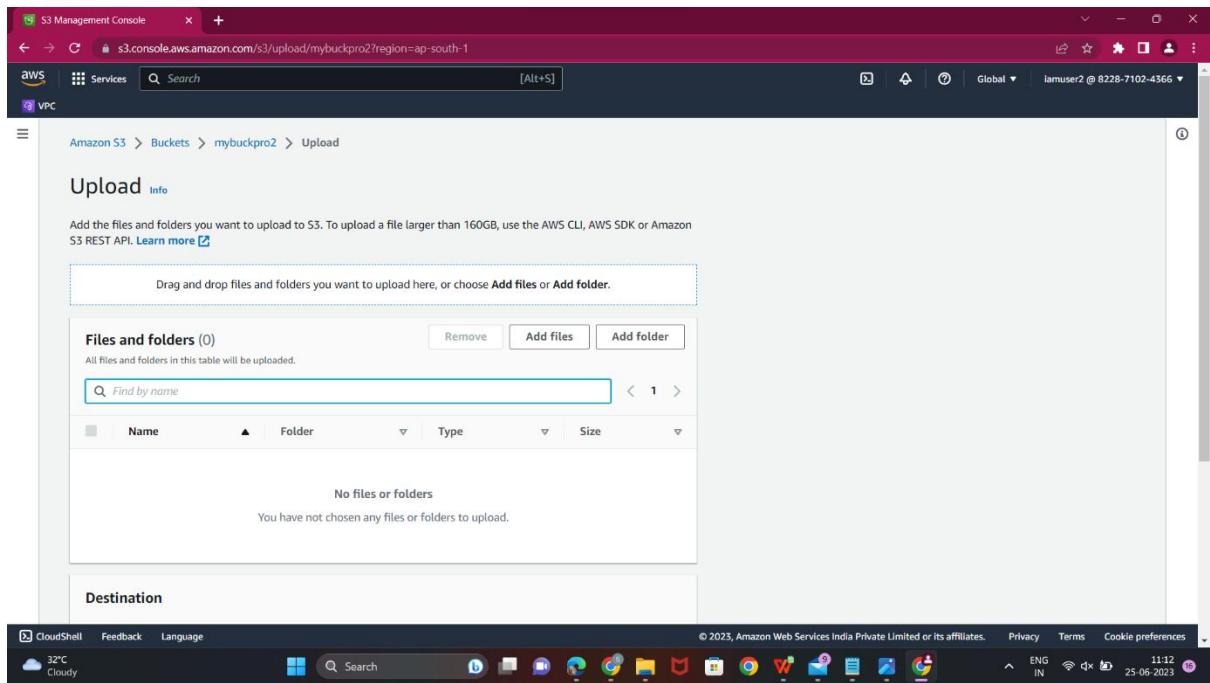
This screenshot shows the 'Configuration' tab of the AWS Lambda function 'function1'. The left sidebar has sections like 'General configuration', 'Triggers', 'Permissions', 'Destinations', 'Function URL', 'Environment variables', 'Tags', 'VPC', and 'Monitoring and operations tools'. The 'Triggers' section is selected and shows one trigger: 'S3: mybuckpro2' with the ARN 'arn:aws:s3:::mybuckpro2'. There are buttons for 'Edit', 'Delete', and 'Add trigger'. The bottom of the screen shows a Windows taskbar with various icons and system status.

Step 7: Now deploy the code that you entered in lambda function



Step 8: Upload a file in bucket mybuckpro2 in iamuser2





The screenshot shows the AWS S3 Management Console interface. A file named "20B91A05F2.docx" is being uploaded to the bucket "mybuckpro2". The upload progress bar at the bottom indicates "1 file, 41.7 KB (100.00%)". The "Upload" button is highlighted in orange.

The screenshot shows the AWS S3 Management Console interface after a successful upload. A green banner at the top says "Upload succeeded". Below it, the "Upload: status" section shows a summary table:

Destination	Succeeded	Failed
s3://mybuckpro2	1 file, 41.7 KB (100.00%)	0 files, 0 B (0%)

The "Files and folders" tab is selected, showing a table with one item:

Name	Type	Size	Status
20B91A05F2.docx	application/vnd.openxmlformats-officedocument.wordprocessingml.document	41.7 KB	Success

Step 9: Check the data in the table which is created as mytable in iamuser1, we can able to see the file that is uploaded in bucket in iamuser2

The screenshot shows the AWS DynamoDB console. On the left, the navigation pane includes 'Dashboard', 'Tables', 'Update settings', 'Explore items', 'PartiQL editor', 'Backups', 'Exports to S3', 'Imports from S3', 'Reserved capacity', and 'Settings'. The main area displays a table named 'mytable' with one item returned. The item details are as follows:

unique	Bucket	Event	EventTime	ObjectKey
40a32456-f208-436f-abdf-8858aff6e07d	mybuckpro1	ObjectCreat...	2023-06-25T10:08:51.000Z	2065

Step 10: Create an IAM user as iamuser3 from root user and provide admin access

The screenshot shows the AWS IAM Management Console. The left sidebar includes 'Identity and Access Management (IAM)', 'Dashboard', 'Access management' (User groups, Users, Roles, Policies, Identity providers, Account settings), and 'Access reports' (Access analyzer, Archive rules, Analyzers, Settings). The main dashboard shows the following resource counts:

User groups	Users	Roles	Policies	Identity providers
0	2	22	9	0

The 'What's new' section includes:

- Advanced Notice: Amazon S3 will automatically enable S3 Block Public Access and disable access control lists for all new buckets starting in April 2023. 6 months ago.
- AWS IAM Identity Center now supports session management capabilities for AWS Command Line Interface (AWS CLI) and

User details

User name	Console password type	Require password reset
iamuser3	Autogenerated	Yes

Permissions summary

Name	Type	Used as
AdministratorAccess	AWS managed - job function	Permissions policy
IAMUserChangePassword	AWS managed	Permissions policy

View user

Console sign-in details

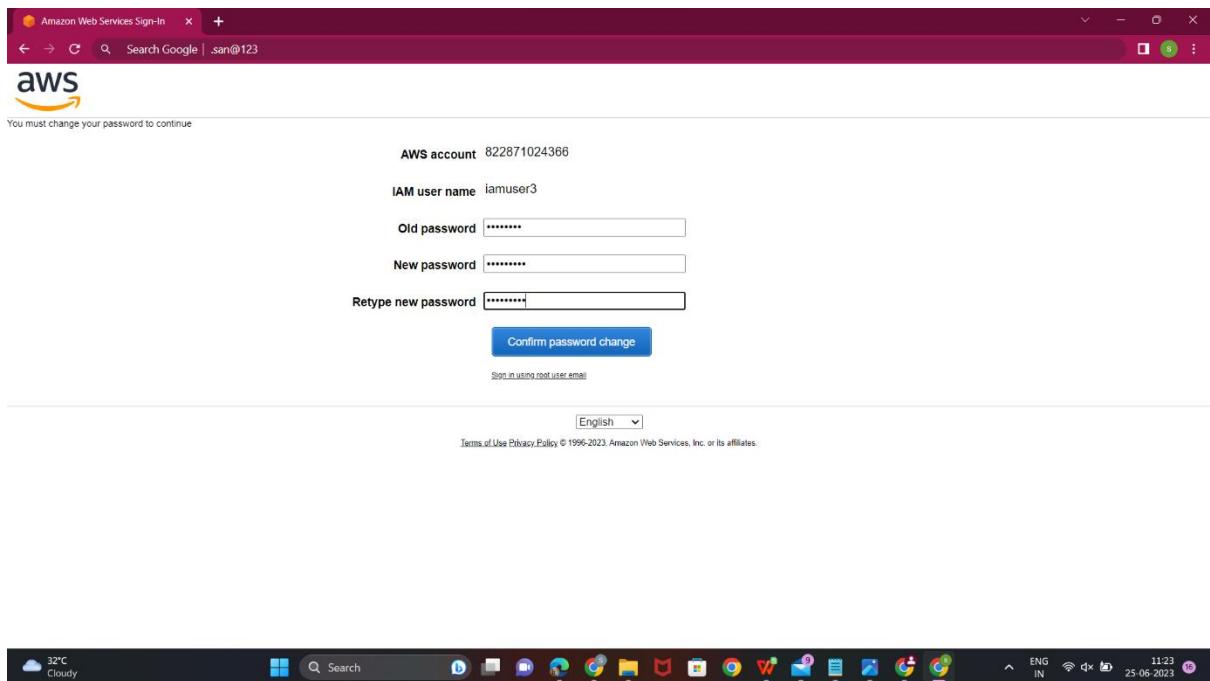
Console sign-in URL
https://822871024366.signin.aws.amazon.com/console

User name
iamuser3

Console password
***** Show

Download .csv file **Return to users list**

Step 11: After creation, login to iamuser3 and create another bucket as myconnectionbuckpro



The screenshot shows the AWS S3 Management Console. The URL is 's3.console.aws.amazon.com/s3/buckets?region=ap-south-1'. The AWS logo is at the top left. The navigation bar includes 'Services' and 'Search'. The top right shows the user 'iamuser3 @ 8228-7102-4366'. On the left, there's a sidebar with 'Amazon S3' and sections for 'Buckets', 'Access Points', 'Object Lambda Access Points', 'Multi-Region Access Points', 'Batch Operations', 'IAM Access Analyzer for S3', 'Block Public Access settings for this account', 'Storage Lens', 'Dashboards', 'AWS Organizations settings', 'Feature spotlight', and 'AWS Marketplace for S3'. The main content area is titled 'Amazon S3 > Buckets'. It features an 'Account snapshot' section with metrics: Total storage (222.0 B), Object count (2), Average object size (111.0 B). It also says you can enable advanced metrics in the 'default-account-dashboard' configuration. Below this is a table titled 'Buckets (3) Info'. The table has columns: Name, AWS Region, Access, and Creation date. The data is as follows:

Name	AWS Region	Access	Creation date
elasticbeanstalk-ap-south-1-822871024366	Asia Pacific (Mumbai) ap-south-1	Objects can be public	June 19, 2023, 13:44:24 (UTC+05:30)
mybuckpro1	EU (Stockholm) eu-north-1	Objects can be public	June 25, 2023, 10:36:04 (UTC+05:30)
mybuckpro2	Asia Pacific (Mumbai) ap-south-1	Objects can be public	June 25, 2023, 11:09:10 (UTC+05:30)

At the bottom, there are links for 'CloudShell', 'Feedback', 'Language', and 'Cookie preferences'. The status bar at the bottom right shows 'Cloudy 32°C' and the date '25-06-2023'.

The screenshot shows the 'Create bucket' wizard on the AWS S3 console. In the 'General configuration' section, the bucket name is set to 'myconnectionbuckpro' and the AWS Region is set to 'Asia Pacific (Singapore) ap-southeast-1'. The 'Object Ownership' section indicates that objects in the bucket are owned by the account and controlled by access control lists (ACLs). The status bar at the bottom shows a weather icon for 32°C Cloudy, a search bar, and system icons.

The screenshot shows the 'Block Public Access settings for this bucket' section. It provides instructions on how to restrict public access through ACLs, bucket policies, or access point policies. It includes three checkboxes: 'Block all public access', 'Block public access to buckets and objects granted through new access control lists (ACLs)', and 'Block public access to buckets and objects granted through any access control lists (ACLs)'. The status bar at the bottom shows a weather icon for 32°C Cloudy, a search bar, and system icons.

The screenshot shows the 'Block public access' section of the AWS S3 Bucket creation wizard. It includes three checkboxes:

- Block public access to buckets and objects granted through **any** access control lists (ACLs)
- Block public access to buckets and objects granted through **new** public bucket or access point policies
- Block public and cross-account access to buckets and objects through **any** public bucket or access point policies

A warning message states: "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 verified use cases such as static website hosting." A checkbox below it is checked: "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

CloudShell Feedback Language © 2023, Amazon Web Services India Private Limited or its affiliates. Privacy Terms Cookie preferences 32°C Cloudy Search ENG IN 11:24 25-06-2023 ⓘ

The screenshot shows the 'Default encryption' section of the AWS S3 Bucket creation wizard. It includes a note: "Server-side encryption is automatically applied to new objects stored in this bucket." and a section for "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 (DSSE-KMS)
Secure your objects with two separate layers of encryption. For details on pricing, see DSSE-KMS pricing on the Management & Insights tab of the [Amazon S3 pricing page](#).

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

Disable
 Enable

Advanced settings

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

Cancel **Create bucket**

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Buckets

- Access Points
- Object Lambda Access Points
- Multi-Region Access Points
- Batch Operations
- IAM Access Analyzer for S3

Storage Lens

- Dashboards
- AWS Organizations settings

Feature spotlight

AWS Marketplace for S3

Buckets (4) Info

Buckets are containers for data stored in S3. [Learn more](#)

Name	AWS Region	Access	Creation date
elasticbeanstalk-ap-south-1-822871024366	Asia Pacific (Mumbai) ap-south-1	Objects can be public	June 19, 2023, 13:44:24 (UTC+05:30)
mybuckpro1	EU (Stockholm) eu-north-1	Objects can be public	June 25, 2023, 10:36:04 (UTC+05:30)
mybuckpro2	Asia Pacific (Mumbai) ap-south-1	Objects can be public	June 25, 2023, 11:09:10 (UTC+05:30)
myconnectionbuckpro	Asia Pacific (Singapore) ap-southeast-1	Objects can be public	June 25, 2023, 11:24:44 (UTC+05:30)

Step 1: Now in iamuser2, create an replication rule for mybuckpro2

Objects (1)

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
20B91A05F2.docx	docx	June 25, 2023, 11:16:01 (UTC+05:30)	41.7 KB	Standard

Lifecycle rule

name	Status	Scope	Current version actions	Noncurrent versions actions	Expired object delete markers	Incomplete multipart uploads
No lifecycle rules						

There are no lifecycle rules for this bucket.

Create lifecycle rule

Replication rules (0)

Use replication rules to define options you want Amazon S3 to apply during replication such as server-side encryption, replica ownership, transitioning replicas to another storage class, and more. [Learn more](#)

Actions	Create replication rule										
Replication rule name	Status	Destination bucket	Destination Region	Priority	Scope	Storage class	Replica owner	Replication Time Control	KMS-encrypted objects (SSE-KMS or DSSE-KMS)	Replica sync	

No replication rules

You don't have any rules in the replication configuration.

Create replication rule

Create replication rule Info

⚠ Replication requires versioning to be enabled for the source bucket. Enable object versioning on this bucket to continue creating the replication rule.

Enable Bucket Versioning

Replication rule configuration

Replication rule name

Up to 255 characters. In order to be able to use CloudWatch metrics to monitor the progress of your replication rule, the replication rule name must only contain English characters.

Status
Choose whether the rule will be enabled or disabled when created.

Enabled

Disabled

Priority
The priority value resolves conflicts that occur when an object is eligible for replication under multiple rules to the same destination. The rule is added to the configuration at the highest priority and the priority can be changed on the replication rules table.

0

Replication rule configuration

Replication rule name: rule54

Status: Enabled

Priority: 0

Source bucket: mybuckpro2

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

Choose a rule scope:

- Limit the scope of this rule using one or more filters
- Apply to all objects in the bucket

Choose a bucket

Name	AWS Region
elasticbeanstalk-ap-south-1-822871024366	Asia Pacific (Mumbai) ap-south-1
mybuckpro1	EU (Stockholm) eu-north-1
mybuckpro2	Asia Pacific (Mumbai) ap-south-1
myconnectionbuckpro	Asia Pacific (Singapore) ap-southeast-1

Cancel Choose path

The screenshot shows the AWS S3 Management Console with the URL s3.console.aws.amazon.com/s3/management/mybuckpro2/replication/create?region=ap-south-1. The interface is divided into several sections:

- Rule Scope:** A sidebar with options to "Limit the scope of this rule using one or more filters" (radio button) or "Apply to all objects in the bucket" (radio button, selected).
- Destination:** A section titled "Destination" where users can replicate objects across buckets in different AWS Regions (Cross-Region Replication) or within the same AWS Region (Same-Region Replication). It includes:
 - A note about replicating objects across regions.
 - A note about replicating objects within the same region.
 - A radio button for "Choose a bucket in this account" (selected).
 - A radio button for "Specify a bucket in another account".
- Bucket name:** A field containing "myconnectionbuckpro" with a "Browse S3" button.
- Warning:** A message stating "Replication requires versioning to be enabled for the destination bucket." with a "Enable bucket versioning" button.
- Destination Region:** Set to "Asia Pacific (Singapore) ap-southeast-1".
- IAM role:** A section titled "IAM role" with a radio button for "Choose from existing IAM roles" (selected) and an option to "Enter IAM role ARN".

The browser toolbar at the bottom shows various icons and the date/time: 25-06-2023, 11:28, ENG IN.

This screenshot continues the replication rule creation process in the AWS S3 Management Console:

- IAM role:** The "Create new role" button is visible.
- Encryption:** A section with a note about server-side encryption protecting data at rest. It includes an unchecked checkbox for "Replicate objects encrypted with AWS Key Management Service (AWS KMS)".
- Destination storage class:** A section with a note about Amazon S3 offering a range of storage classes. It includes an unchecked checkbox for "Change the storage class for the replicated objects".
- Additional replication options:** A section currently empty.

The browser toolbar at the bottom shows various icons and the date/time: 26-06-2023, 11:42, ENG IN.

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

Change the storage class for the replicated objects

Additional replication options

- Replication Time Control (RTC)**
Replication Time Control replicates 99.99% of new objects within 15 minutes and includes replication metrics. Additional fees will apply. [Learn more](#)
- Replication metrics**
With replication metrics, you can monitor the total number and size of objects that are pending replication, and the maximum replication time to the destination Region. You can also view and diagnose replication failures. CloudWatch metrics fees apply. [Learn more](#) or see [Amazon CloudWatch pricing](#)
- Delete marker replication**
Delete markers created by S3 delete operations will be replicated. Delete markers created by lifecycle rules are not replicated. [Learn more](#)
- Replica modification sync**
Replicate metadata changes made to replicas in this bucket to the destination bucket. [Learn more](#)

Cancel **Save**

Replication configuration successfully updated
If changes to the configuration aren't displayed, choose the refresh button. Changes apply only to new objects. To replicate existing objects with this configuration, choose [Create replication job](#).

Amazon S3 > Buckets > mybuckpro2 > Replication rules

Replication rules

Replication enables automatic and asynchronous copying of a group of objects during replication.

Replication configuration settings
Configuration settings affect all replication rules in the bucket.

Source bucket: mybuckpro2
Source Region: Asia Pacific (Mumbai) ap-south-1

Replicate existing objects?

You can enable a one-time Batch Operations job from this replication configuration to replicate objects that already exist in the bucket and to synchronize the source and destination buckets. [Learn more](#) or see [pricing](#)

Existing objects:

No, do not replicate existing objects.
 Yes, replicate existing objects.

Cancel **Submit**

View details Edit rule Actions **Create replication job**

The screenshot shows the AWS S3 Management Console with a replication rule configuration page. The rule details are as follows:

Replication rule name	Status	Destination bucket	Destination Region	Priority	Scope	Storage class	Replica owner	Replication Time Control	KMS-encrypted objects (SSE-KMS or DSSE-KMS)	Rej. m/syn
rule54	Enabled	s3://myconnectionbuckpro	Asia Pacific (Singapore) ap-southeast-1	0	Entire bucket	Same as source	Same as source	Disabled	Do not replicate	Dis

Step 12: After replication rule upload a file in mybuckpro2

The screenshot shows the AWS S3 Management Console with the 'Upload' interface for the 'mybuckpro2' bucket. The interface includes a file upload area and a destination configuration section.

Upload

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.

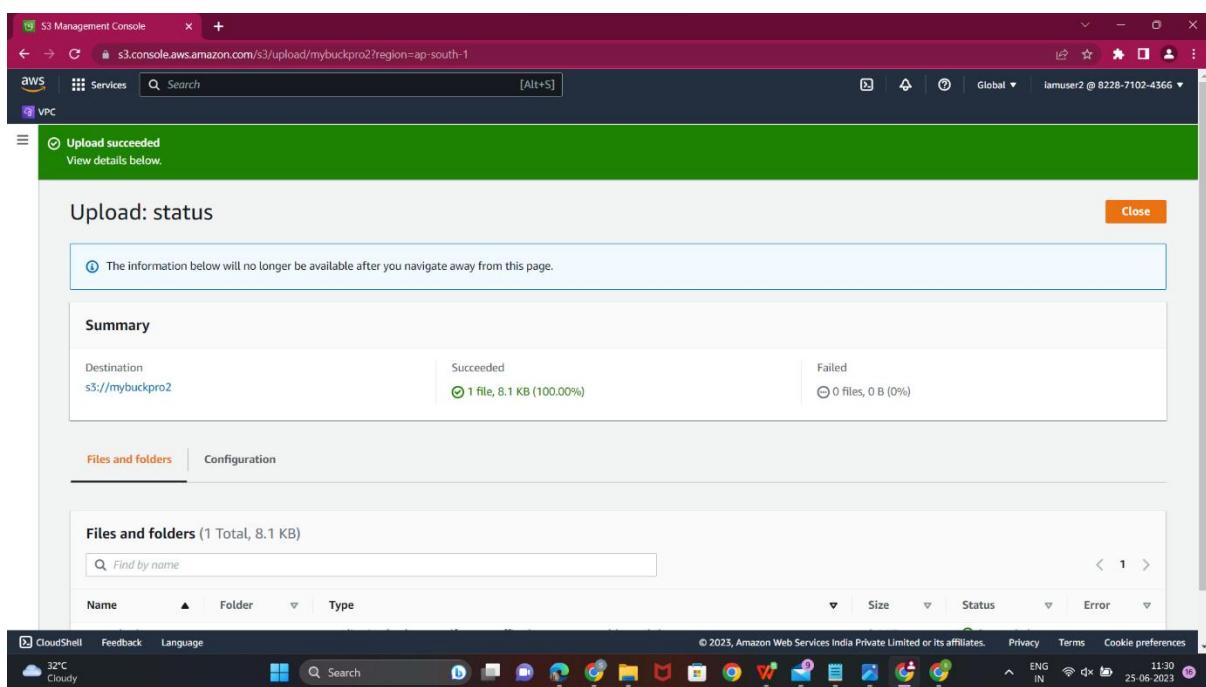
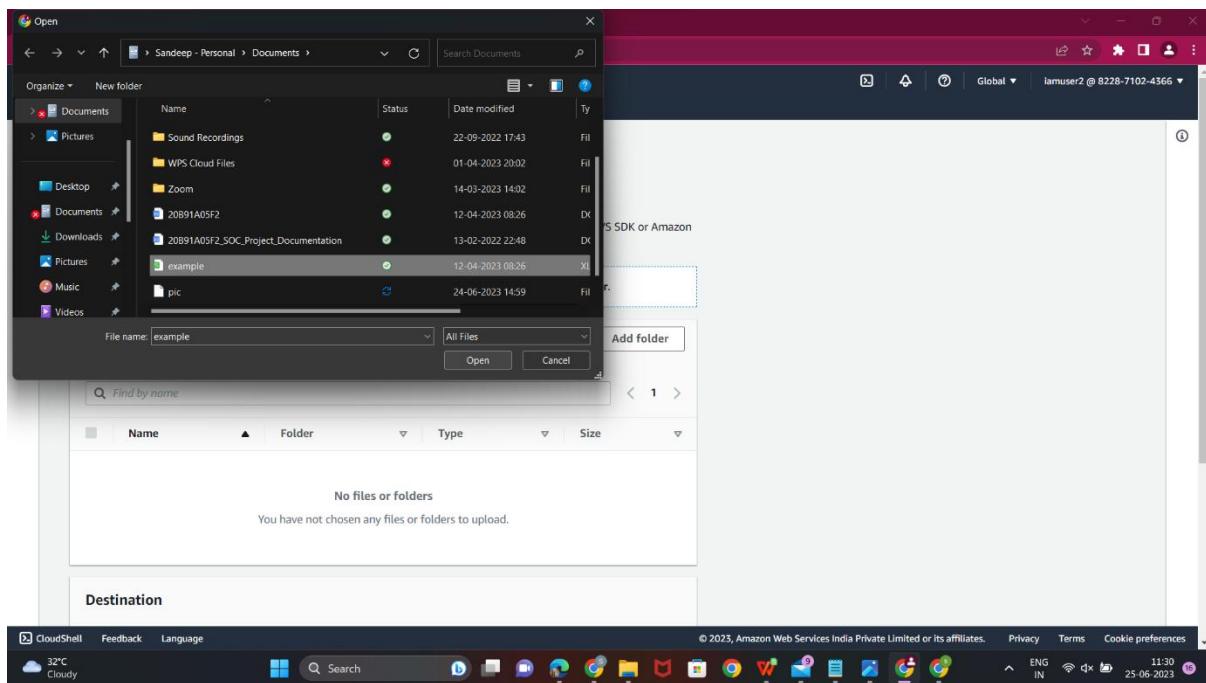
Files and folders (0)

All files and folders in this table will be uploaded.

Name	Folder	Type	Size
No files or folders			

You have not chosen any files or folders to upload.

Destination



The screenshot shows the AWS S3 console interface. On the left, a sidebar titled "Amazon S3" contains links for Buckets, Access Points, Object Lambda Access Points, Multi-Region Access Points, Batch Operations, IAM Access Analyzer for S3, Block Public Access settings for this account, Storage Lens (Dashboards, AWS Organizations settings), Feature spotlight, and AWS Marketplace for S3. The main content area shows the path "Amazon S3 > Buckets > myconnectionbuckpro". Below this is the "myconnectionbuckpro" bucket page with tabs for Objects, Properties, Permissions, Metrics, Management, and Access Points. The "Objects" tab is selected, showing a table with one item: "20B91A05F2.docx" (Type: docx, Last modified: June 25, 2023, 11:37:03 (UTC+05:30), Size: 41.7 KB, Storage class: Standard). At the bottom of the page, there are CloudShell, Feedback, and Language options, along with a footer with various icons and "© 2023, Amazon Web Services India Private Limited or its affiliates.".

This screenshot is identical to the one above it, showing the AWS S3 console with the same sidebar, path, and object list. The difference is the time displayed at the bottom right of the screen: "11:37 25-06-2023".

Step 13: Create an IAM user as iamuser4 and login into it

The screenshot shows the AWS IAM dashboard. A green banner at the top indicates "User created successfully". Below the banner, the IAM dashboard interface is visible, featuring sections for Security recommendations, IAM resources, and What's new. On the right side, there is an "AWS Account" summary and a "Quick Links" section.

User groups	Users	Roles	Policies	Identity providers
0	3	22	9	0

What's new

Updates for features in IAM

AWS Account

- Account ID: 822871024366
- Account Alias: 822871024366
- Create
- Sign-In URL for IAM users in this account: https://822871024366.sigin.aws.amazon.com/console

Quick Links

- My security credentials
- Manage your access keys, multi-factor authentication (MFA) and other credentials.

The screenshot shows the "Users" page under the IAM service. It displays a table of three users: iamuser1, iamuser2, and iamuser3. Each user has a status of "None" for Groups, Last activity, MFA, Password age, and Active key age.

User name	Groups	Last activity	MFA	Password age	Active key age
iamuser1	None	47 minutes ago	None	46 minutes ago	-
iamuser2	None	36 minutes ago	None	36 minutes ago	-
iamuser3	None	Never	None	None	-

User details

User name: iamuser4

Provide user access to the AWS Management Console - optional

Are you providing console access to a person?

User type:

- Specify a user in Identity Center - Recommended
- I want to create an IAM user

Console password

Autogenerated password

Custom password

Permissions summary

Name	Type	Used as
AdministratorAccess	AWS managed - job function	Permissions policy
IAMUserChangePassword	AWS managed	Permissions policy

Tags - optional

No tags associated with the resource.

User details

User name: iamuser4

Console password type: Autogenerated

Require password reset: Yes

Permissions summary

Name	Type	Used as
AdministratorAccess	AWS managed - job function	Permissions policy
IAMUserChangePassword	AWS managed	Permissions policy

Tags - optional

No tags associated with the resource.

User created successfully

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

IAM > Users > Create user

Step 1
Specify user details

Step 2
Set permissions

Step 3
Review and create

Step 4
Retrieve password

Console sign-in details

Email sign-in instructions

Console sign-in URL
https://822871024366.signin.aws.amazon.com/console

User name
iamuser4

Console password
***** Show

Download .csv file Return to users list

You must change your password to continue

AWS account 822871024366

IAM user name iamuser4

Old password *****

New password *****

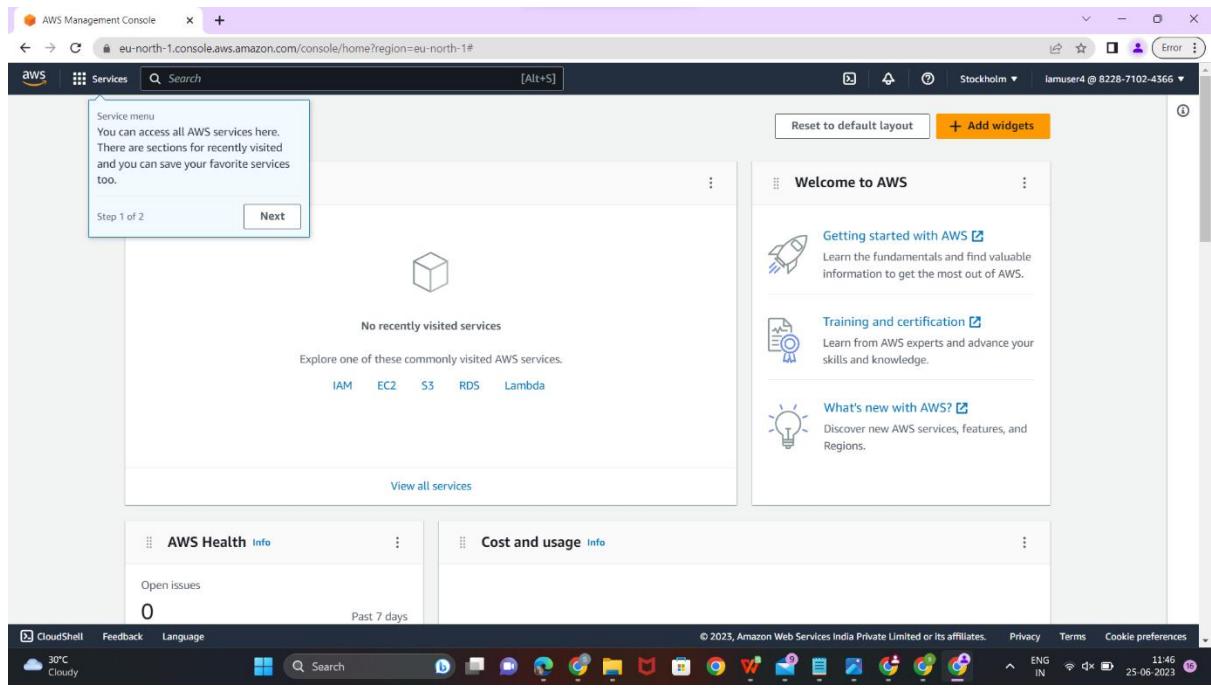
Retype new password *****

Confirm password change

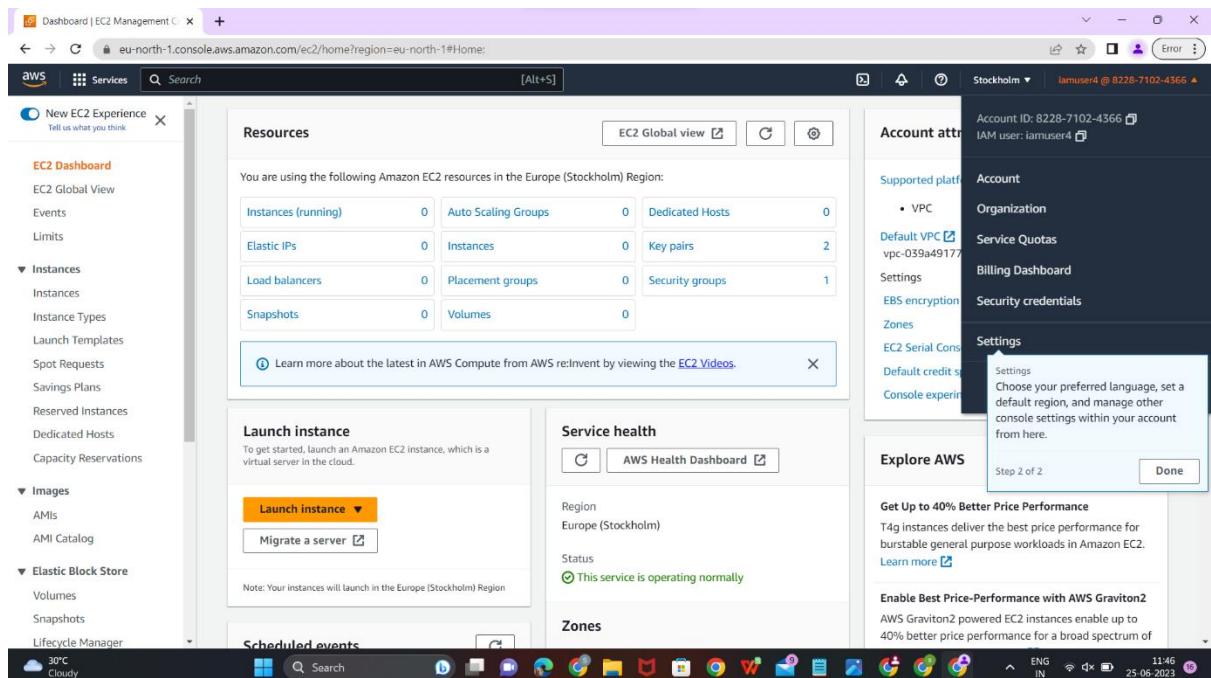
Sign in using root user email

English

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Step 14: Open EC2 and launch a instance



Screenshot of the AWS EC2 Management Console showing the Instances page. The user is prompted to "Launch instances". A tooltip for "Introducing AWS User Notifications" is visible.

Instances | EC2 Management Con

EC2 Dashboard | EC2 Global View | Events | Limits

Instances

- Instances
- Instance Types
- Launch Templates
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts
- Capacity Reservations

Images

- AMIs
- AMI Catalog

Elastic Block Store

- Volumes
- Snapshots

No instances

You do not have any instances in this region

Launch instances

Introducing AWS User Notifications

The new AWS User Notifications service enables you to view notifications from AWS in a central location in the AWS Management Console.

Done

Public IPv4 DNS

30°C Cloudy

Screenshot of the AWS EC2 Management Console showing the "Launch an instance" wizard. The user is on the "Summary" step.

Launch an instance | EC2 Manager

Name: instance1

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

Quick Start

Amazon Linux | macOS | Ubuntu | Windows | Red Hat | ... | Browse more AMIs

Amazon Machine Image (AMI)

Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type

ami-0c114aecd1e598bc8f (64-bit (x86)) / ami-06100fe2a8794f394 (64-bit (Arm))

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

Free tier eligible

Summary

Number of instances: 1

Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI...read more

Virtual server type (instance type): t3.micro

Firewall (security group): New security group

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

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro) in the Regions in which t2.micro is unavailable instance usage on free tier AMIs per month, 30 GiB of EBS storage.

Cancel | Launch instance | Review commands

30°C Cloudy

The screenshot shows the 'Launch an instance' wizard in the AWS Management Console. The current step is 'Summary'. In the 'Number of instances' field, '1' is entered. The 'Software Image (AMI)' section shows 'Amazon Linux 2 Kernel 5.10 AMI 2.0.20230612.0 x86_64 HVM gp2' selected. The 'Virtual server type (instance type)' is set to 't3.micro'. The 'Storage (volumes)' section indicates '1 volume(s) - 8 GiB'. A tooltip for the 'Free tier' is visible, stating: 'Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage.' At the bottom right are 'Cancel', 'Launch instance' (in orange), and 'Review commands' buttons.

The screenshot shows the 'Launch an instance' wizard in the AWS Management Console, currently at the 'Network settings' step. Under 'VPC - required', a subnet 'subnet-0442fe2bca5133adf' is selected. The 'Auto-assign public IP' dropdown is set to 'Enable'. In the 'Firewall (security groups)' section, a new security group 'sg24' is being created. The 'Description' field contains 'launch-wizard-1 created 2023-06-25T06:17:37.047Z'. The 'Inbound Security Group Rules' section lists a single rule: 'Security group rule 1 (TCP, 22, 0.0.0.0/0)'. The 'Protocol' and 'Port range' fields are also visible. The right side of the screen shows the 'Summary' step, which is identical to the one in the previous screenshot. The bottom of the screen shows the Windows taskbar with various pinned icons.

The screenshot shows the 'Launch an instance' wizard in the AWS Management Console. The current step is 'Configure security group'. On the left, under 'Inbound Security Group Rules', there are two rules:

- Security group rule 1 (TCP, 22, 0.0.0.0/0)**: Type: ssh, Protocol: TCP, Port range: 22. Source type: Anywhere. Description: e.g. SSH for admin desktop.
- Security group rule 2 (All, All, Multiple sources)**: Type: All traffic, Protocol: All, Port range: All. Source type: Anywhere. Description: e.g. SSH for admin desktop.

A warning message at the bottom left states: "⚠️ 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." Below this is a button labeled 'Add security group rule'.

On the right, the 'Summary' section shows:

- Number of instances: 1
- Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI...read more
- Virtual server type (instance type): t3.micro
- Firewall (security group): New security group
- Storage (volumes): 1 volume(s) - 8 GiB

A tooltip for the instance type says: "Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage."

At the bottom right are 'Cancel', 'Launch instance' (highlighted in orange), and 'Review commands' buttons.

The screenshot shows the 'Launch an instance' wizard in the AWS Management Console. The current step is 'Configure storage'.

Under 'Configure storage' (Info tab), it shows:

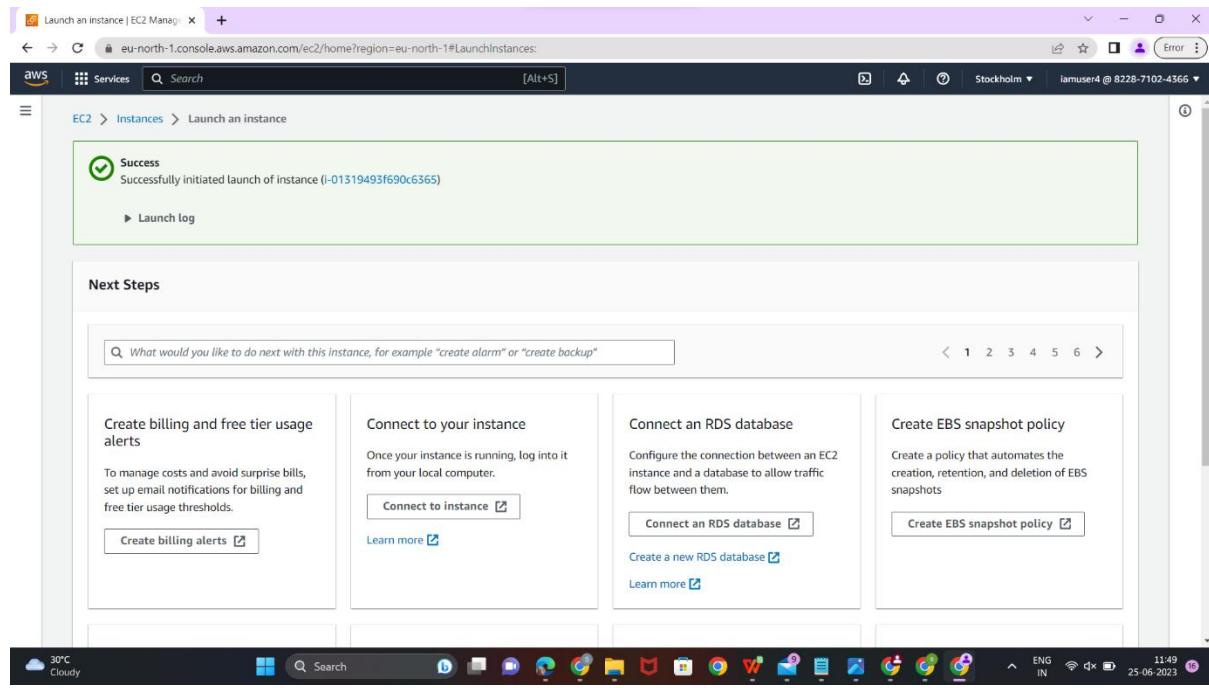
- Root volume (Not encrypted): 1x 8 GiB gp2
- A tooltip for the volume says: "Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage"
- File systems: 0 x File systems

Below this is an 'Advanced' tab with a 'Free tier' message: "Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage."

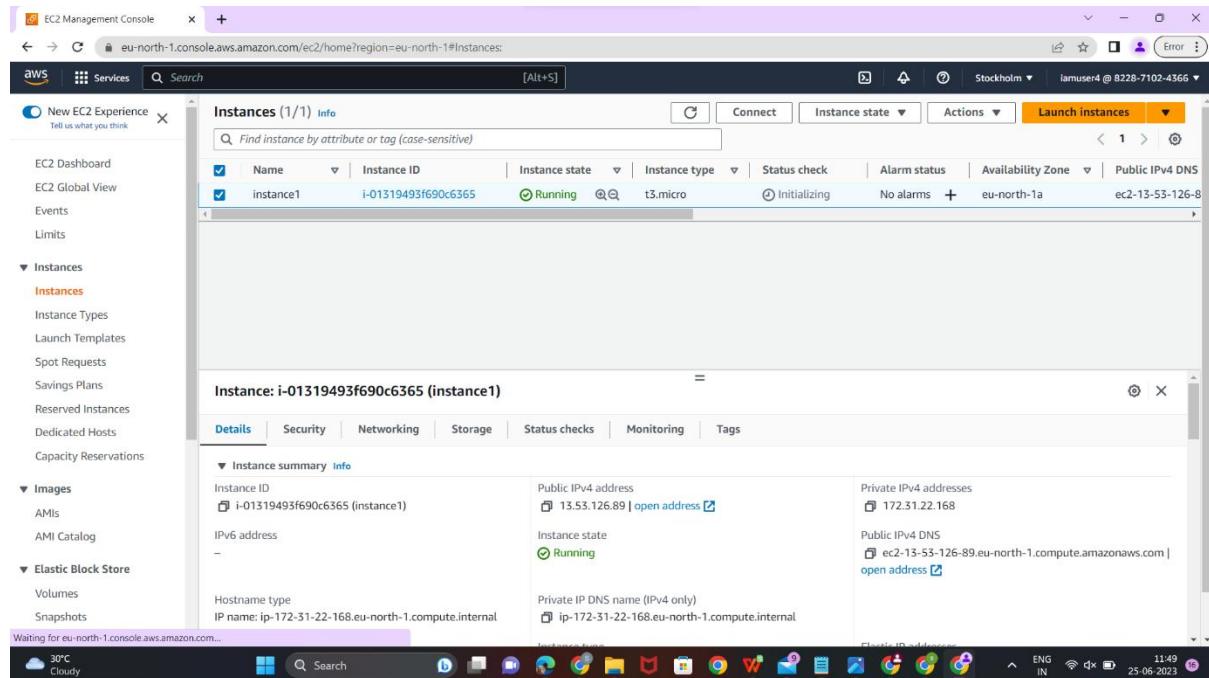
On the right, the 'Summary' section shows:

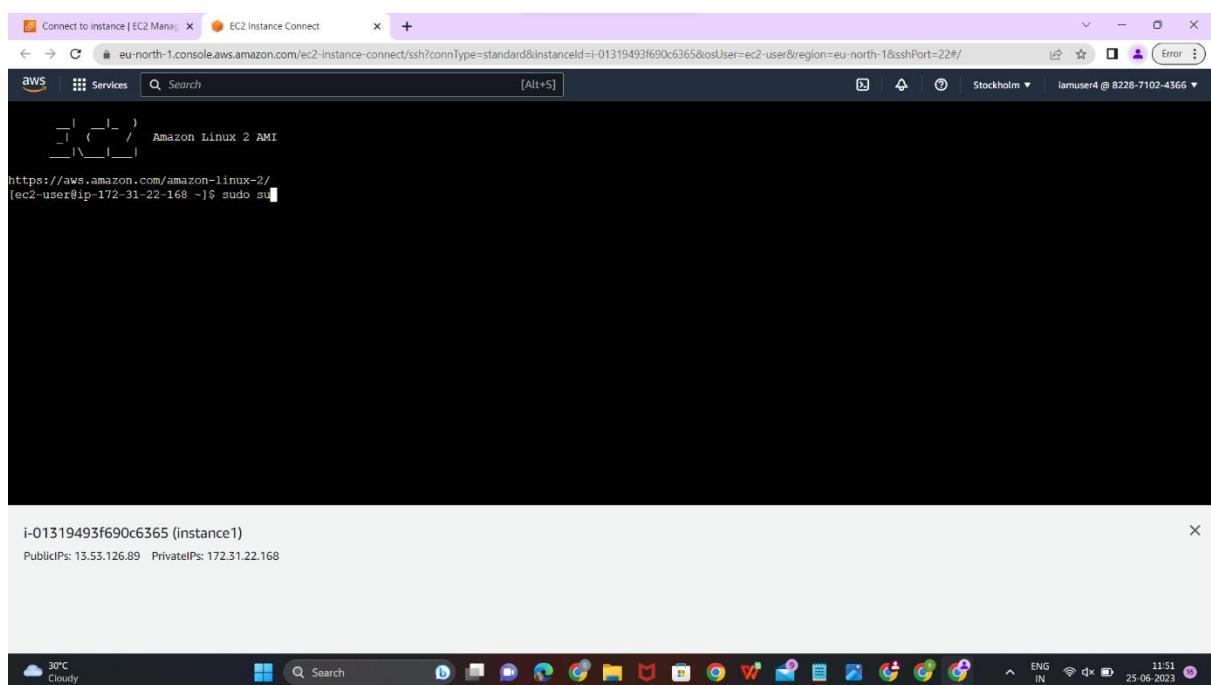
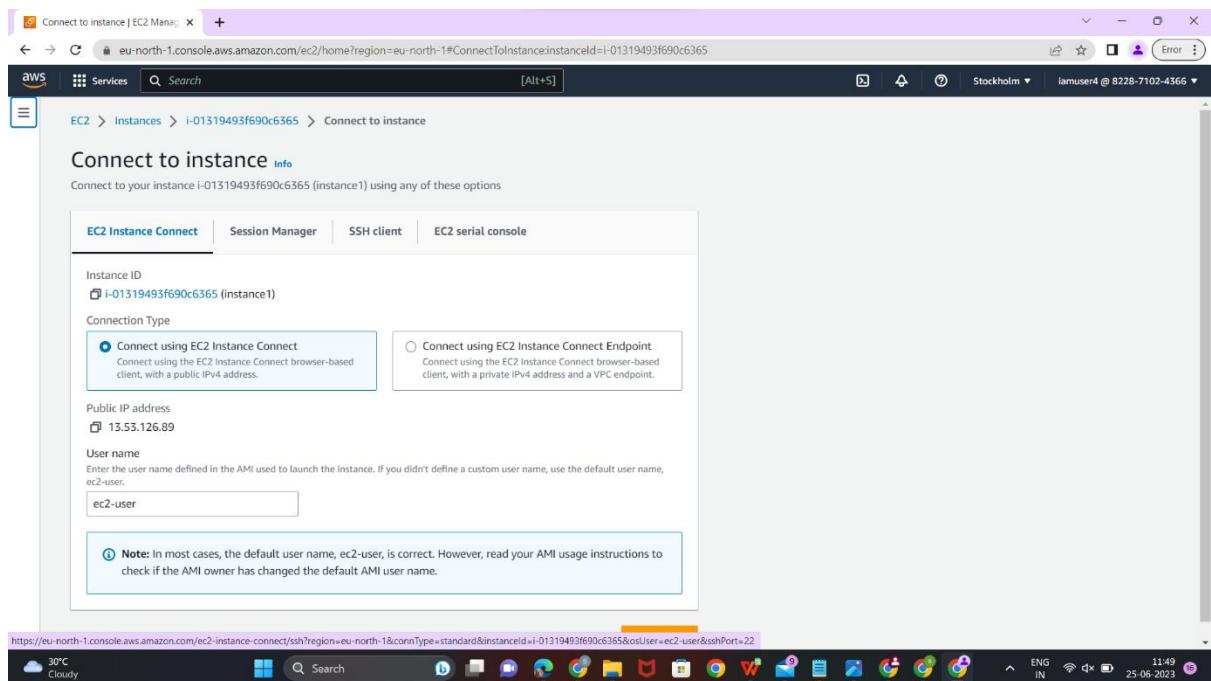
- Number of instances: 1
- Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI...read more
- Virtual server type (instance type): t3.micro
- Firewall (security group): New security group
- Storage (volumes): 1 volume(s) - 8 GiB

At the bottom right are 'Cancel', 'Launch instance' (highlighted in orange), and 'Review commands' buttons.

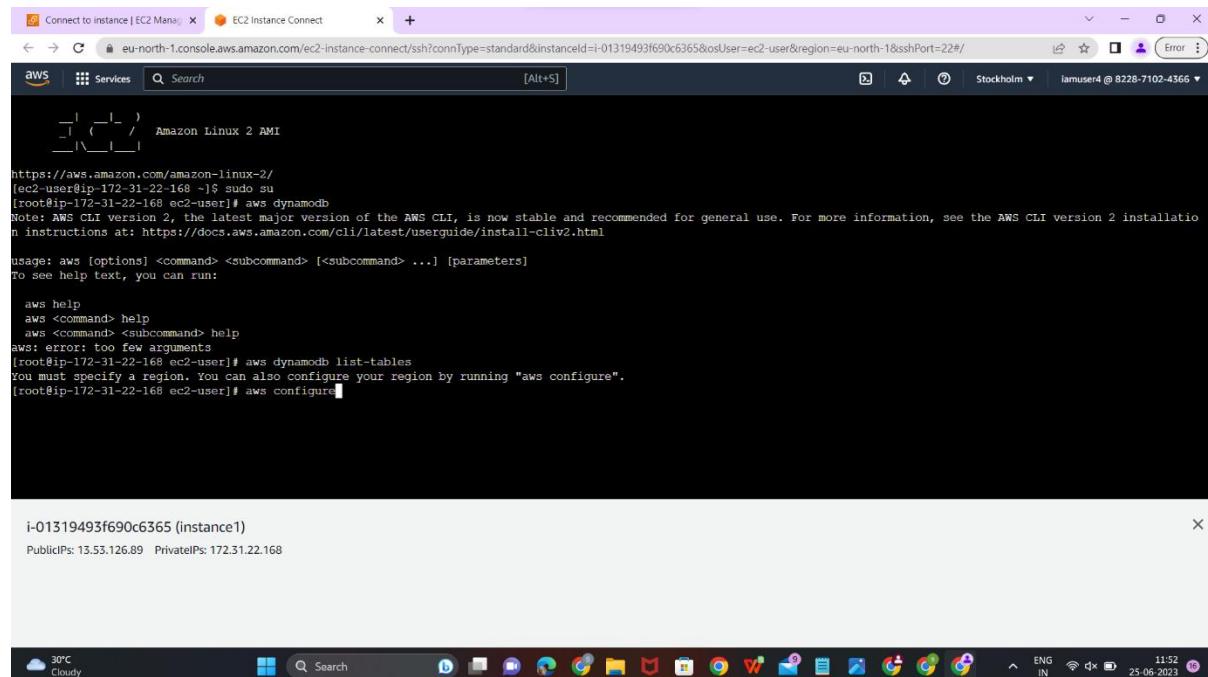


Step 15: After launching the instance , Connect the instance





Step 16: Enter commands to access Dynamodb, use "aws configure"



The screenshot shows a terminal window on an Amazon Linux 2 AMI EC2 instance. The user is running the AWS CLI command 'aws dynamodb list-tables'. The output indicates that no region is configured and suggests running 'aws configure'. The terminal also shows the AWS CLI version 2 help text.

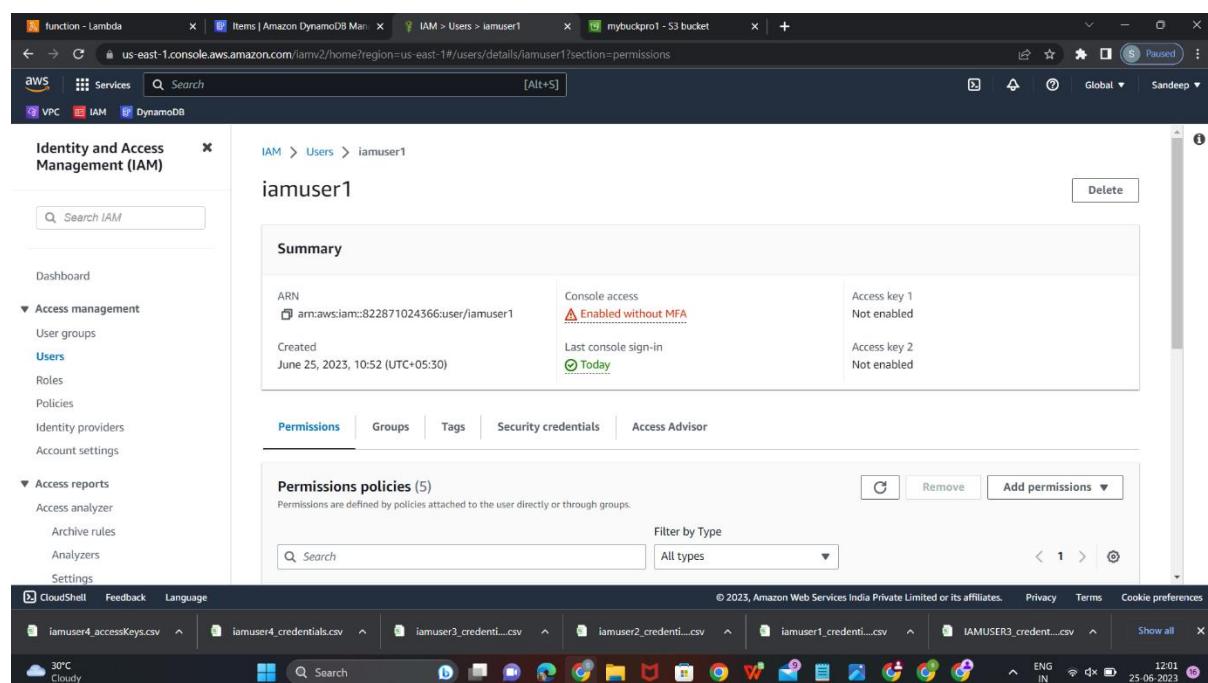
```
https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-22-168 ~]$ sudo su
[root@ip-172-31-22-168 ec2-user]# aws dynamodb
Note: AWS CLI version 2, the latest major version of the AWS CLI, is now stable and recommended for general use. For more information, see the AWS CLI version 2 installation instructions at: https://docs.aws.amazon.com/cli/latest/userguide/install-cliv2.html
Usage: aws [options] <command> [<subcommand> [<subcommand> ...] [parameters]
To see help text, you can run:
aws help
aws <command> help
aws <command> <subcommand> help
aws: error: too few arguments
[root@ip-172-31-22-168 ec2-user]# aws dynamodb list-tables
You must specify a region. You can also configure your region by running "aws configure".
[root@ip-172-31-22-168 ec2-user]# aws configure
```

i-01319493f690c6365 (instance1)

PublicIPs: 13.53.126.89 PrivateIPs: 172.31.22.168

Cloudy ENG IN 11:52 25-06-2023

Step 17: To know the access key goto iamuser1 and in security connections create Access keys



The screenshot shows the IAM User details page for 'iamuser1'. Under the 'Access management' tab, the 'Access keys' section is visible. It shows two access keys: 'Access key 1' (Enabled without MFA) and 'Access key 2' (Not enabled). The 'Permissions' tab is selected, showing five attached policies. The browser status bar at the bottom indicates the user has multiple CSV files open, including 'iamuser4.accessKeys.csv', 'iamuser4.credentials.csv', 'iamuser3.credentials...', 'iamuser2.credentials...', 'iamuser1.credentials...', and 'IAMUSER3.credentials...'.

Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

User groups

Users

Roles

Policies

Identity providers

Account settings

Access reports

Access analyzer

Archive rules

Analyzers

Settings

CloudShell Feedback Language

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The screenshot shows the AWS Identity and Access Management (IAM) console. The left sidebar is collapsed, and the main area displays the 'Security credentials' tab for the user 'iamuser1'. The 'Console sign-in' section shows a recent sign-in link (<https://822871024366.signin.aws.amazon.com/console>) and a password updated 1 hour ago. The 'Multi-factor authentication (MFA)' section shows no MFA devices assigned. The 'Access keys' section shows no access keys.

This screenshot is identical to the one above, showing the AWS IAM console for user 'iamuser1'. The 'Console sign-in' section shows a recent sign-in link and password. The 'Multi-factor authentication (MFA)' section shows no MFA devices assigned. The 'Access keys' section shows no access keys.

The screenshot shows the AWS IAM Access Key creation wizard. The title bar says "Step 1: Access key best practices & alternatives". The main content area is titled "Access key best practices & alternatives" with the sub-instruction "Avoid using long-term credentials like access keys to improve your security. Consider the following use cases and alternatives." Below this, there is a section titled "Use case" containing five options:

- Command Line Interface (CLI)
You plan to use this access key to enable the AWS CLI to access your AWS account.
- Local code
You plan to use this access key to enable application code in a local development environment to access your AWS account.
- Application running on an AWS compute service
You plan to use this access key to enable application code running on an AWS compute service like Amazon EC2, Amazon ECS, or AWS Lambda to access your AWS account.
- Third-party service
You plan to use this access key to enable access for a third-party application or service that monitors or manages your AWS resources.
- Application running outside AWS

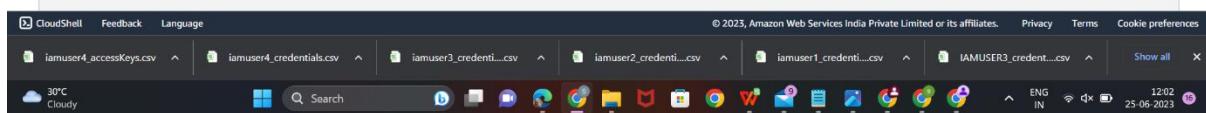
At the bottom of the wizard, there is a "Confirmation" section with a checkbox: "I understand the above recommendation and want to proceed to create an access key." The "Next" button is highlighted in orange.

This screenshot continues the AWS IAM Access Key creation wizard. The "Use case" section now includes four additional options:

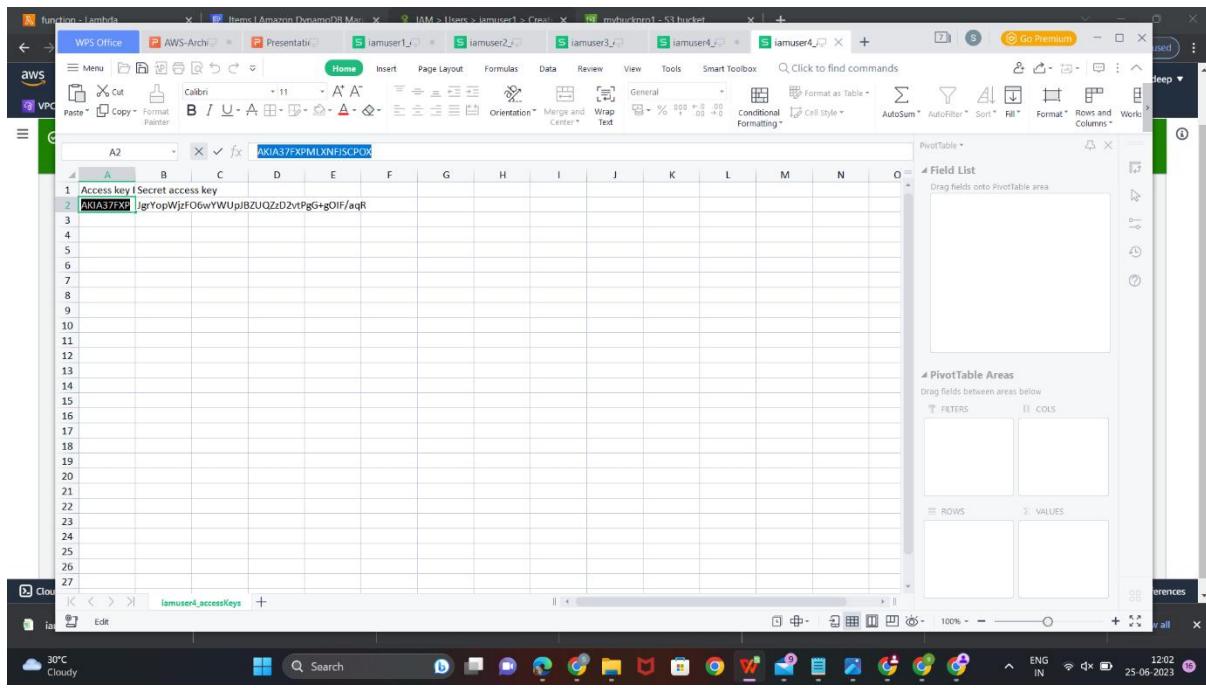
- Other
Your use case is not listed here.
- Alternatives recommended
 - Use AWS CloudShell, a browser-based CLI, to run commands. [Learn more](#)
 - Use the AWS CLI V2 and enable authentication through a user in IAM Identity Center. [Learn more](#)

The "Confirmation" section remains the same, with the checkbox "I understand the above recommendation and want to proceed to create an access key." and the "Next" button.

The screenshot shows the 'Set description tag - optional' step of creating an access key. It includes a description of what a tag is, a text input field for 'Description tag value' containing 'accesskey', and a note about character restrictions. Buttons for 'Cancel', 'Previous', and 'Create access key' are at the bottom.



The screenshot shows the 'Access key created' confirmation message, stating that it's the only time the secret access key can be viewed or downloaded. It then shows the 'Retrieve access keys' section where the access key and secret access key are listed. A 'Download .csv file' button is at the bottom.



Step 18: Enter the obtain access id and password in connected console in iamuser4

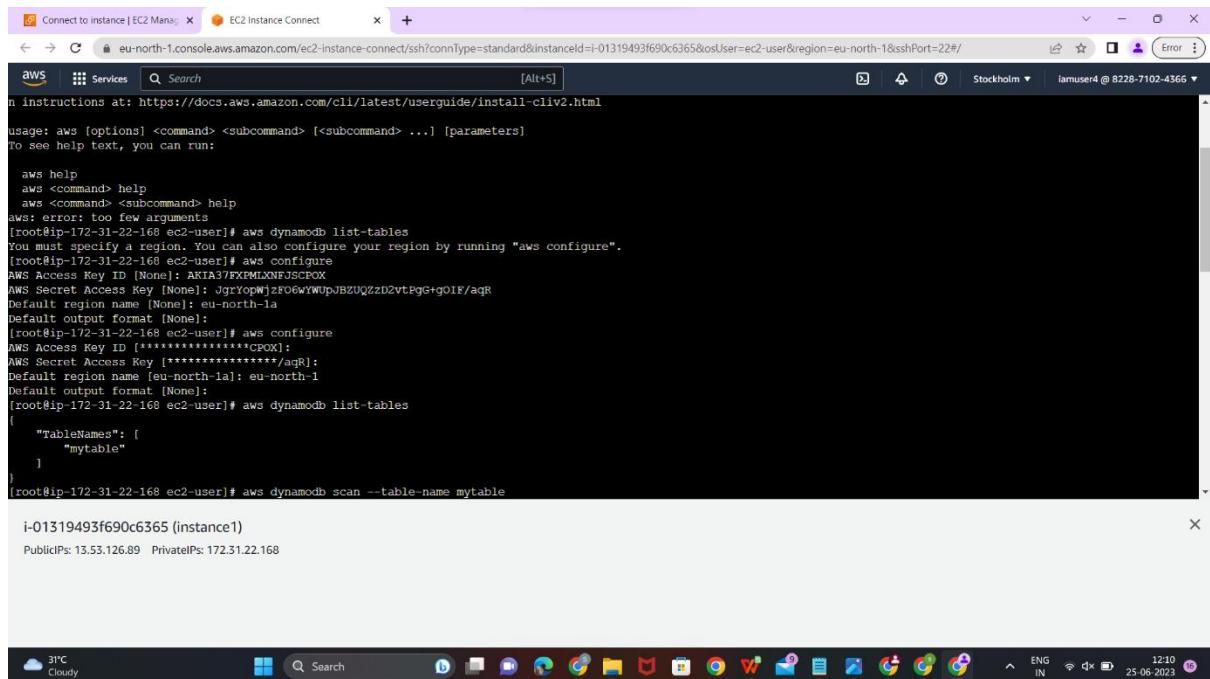
```

Connect to instance | EC2 Manager | EC2 Instance Connect | eu-north-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-01319493f690c6365&osUser=ec2-user&region=eu-north-1&sshPort=22#/
[ec2-user@ip-172-31-22-168 ~]$ sudo su
[root@ip-172-31-22-168 ec2-user]# aws dynamodb
Note: AWS CLI version 2, the latest major version of the AWS CLI, is now stable and recommended for general use. For more information, see the AWS CLI version 2 installation instructions at: https://docs.aws.amazon.com/cli/latest/userguide/install-cliv2.html
usage: aws [options] <command> <subcommand> [<subcommand> ...] [parameters]
to see help text, you can run:

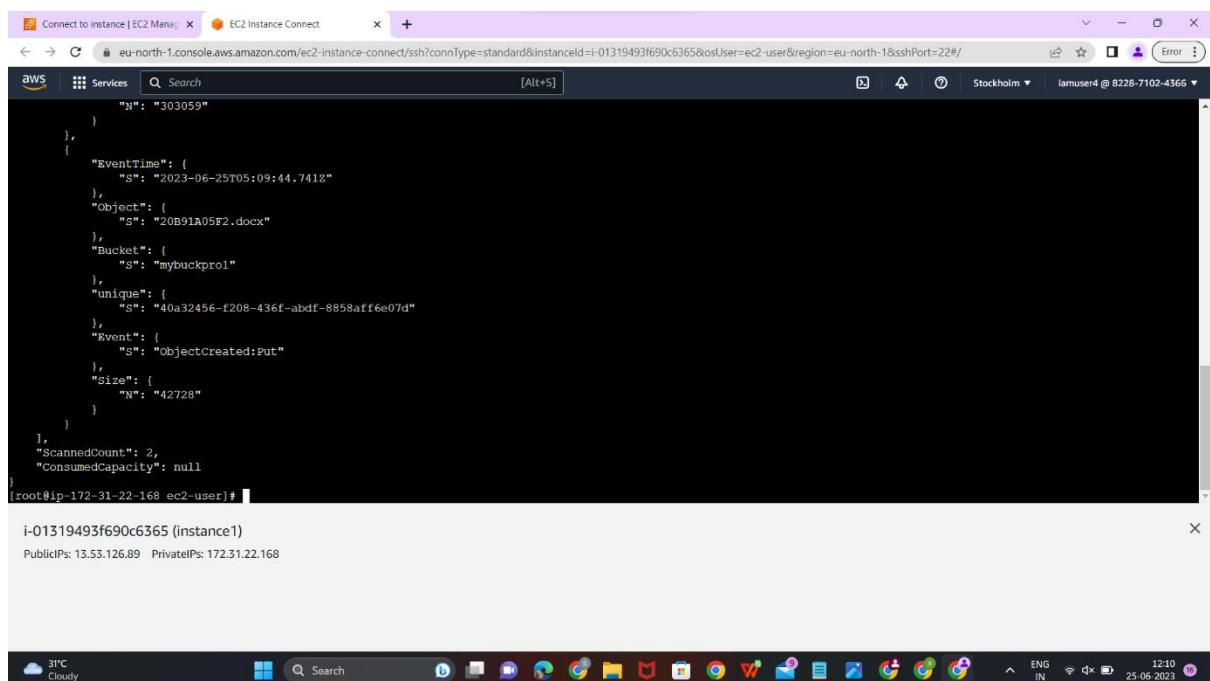
aws help
aws <command> help
aws <command> <subcommand> help
aws: error: too few arguments
[root@ip-172-31-22-168 ec2-user]# aws dynamodb list-tables
You must specify a region. You can also configure your region by running "aws configure".
[root@ip-172-31-22-168 ec2-user]# aws configure
AWS Access Key ID [None]: AKIA37FXPMXLXNFJSCPOX
AWS Secret Access Key [None]: JgrYopWjzFO6wYWUpJBZUQZD2vtPgG+goIF/aqR

```

i-01319493f690c6365 (instance1)
Public IPs: 13.53.126.89 Private IPs: 172.31.22.168



```
Connect to instance | EC2 Manager x EC2 Instance Connect x + eu-north-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-01319493f690c6365&osUser=ec2-user&region=eu-north-1&sshPort=22#/[Alt+S] AWS Services Search Stockholm iamuser4 @ 8228-7102-4366 Error instructions at: https://docs.aws.amazon.com/cli/latest/userguide/install-cliv2.html usage: aws [options] <command> [<subcommand> [<subcommand> ...]] [parameters] To see help text, you can run: aws help aws <command> help aws <command> <subcommand> help aws: error: too few arguments [root@ip-172-31-22-168 ec2-user]# aws dynamodb list-tables You must specify a region. You can also configure your region by running "aws configure". [root@ip-172-31-22-168 ec2-user]# aws configure AWS Access Key ID [None]: AKTA37EXPMXNFSJSCPOX AWS Secret Access Key [None]: JqrYopwzjZFO6WYWUpJBZUQZD2vtPgG+gOIF/qR Default region name [None]: eu-north-1a Default output format [None]: [root@ip-172-31-22-168 ec2-user]# aws dynamodb list-tables { "TableNames": [ "mytable" ] } [root@ip-172-31-22-168 ec2-user]# aws dynamodb scan --table-name mytable i-01319493f690c6365 (instance1) PublicIPs: 13.53.126.89 PrivateIPs: 172.31.22.168
```



```
Connect to instance | EC2 Manager x EC2 Instance Connect x + eu-north-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-01319493f690c6365&osUser=ec2-user&region=eu-north-1&sshPort=22#/[Alt+S] AWS Services Search Stockholm iamuser4 @ 8228-7102-4366 Error "N": "303059" }, { "EventTime": { "S": "2023-06-25T05:09:44.741Z" }, "Object": { "S": "20B91A05E2.docx" }, "Bucket": { "S": "mybuckpro1" }, "unique": { "S": "40a32456-f208-436f-abdf-8858aff6e07d" }, "Event": { "S": "ObjectCreated:Put" }, "Size": { "N": "42728" } }, { "ScannedCount": 2, "ConsumedCapacity": null } [root@ip-172-31-22-168 ec2-user]# i-01319493f690c6365 (instance1) PublicIPs: 13.53.126.89 PrivateIPs: 172.31.22.168
```

