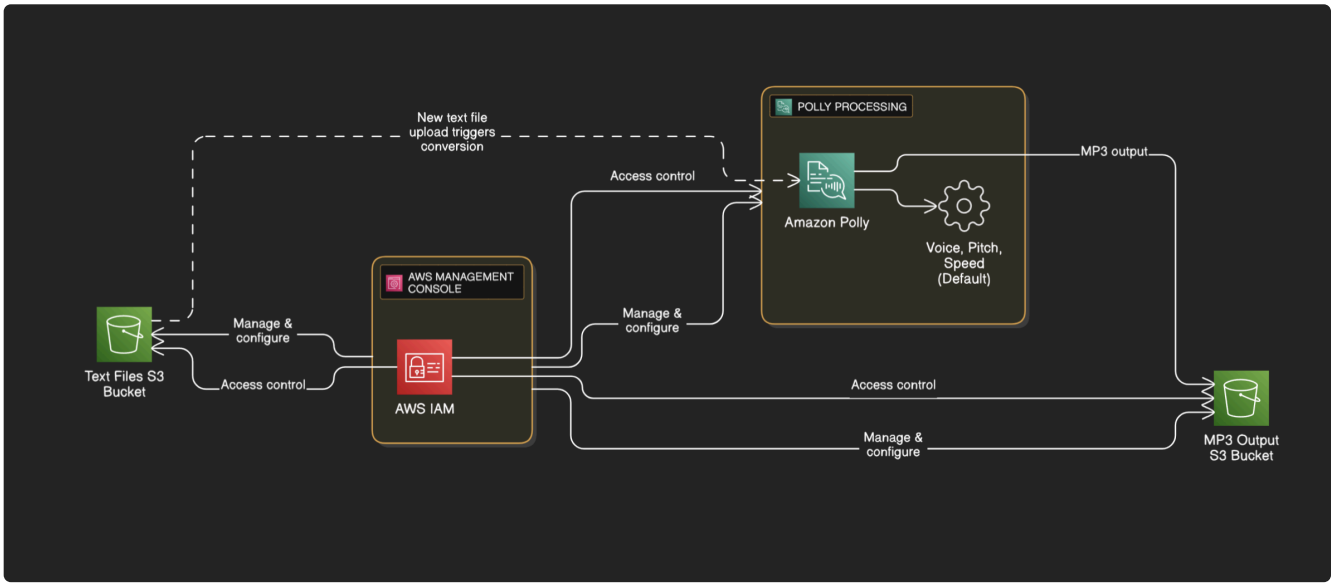
Amazon Polly Text Narrator

In this project, we will be developing a text narrator using Amazon Polly. A piece of text (book, article, newsletter) will be uploaded in an Amazon S3 bucket and converted to speech. The voice, pitch and speed parmeters can be adjusted.

Services Used

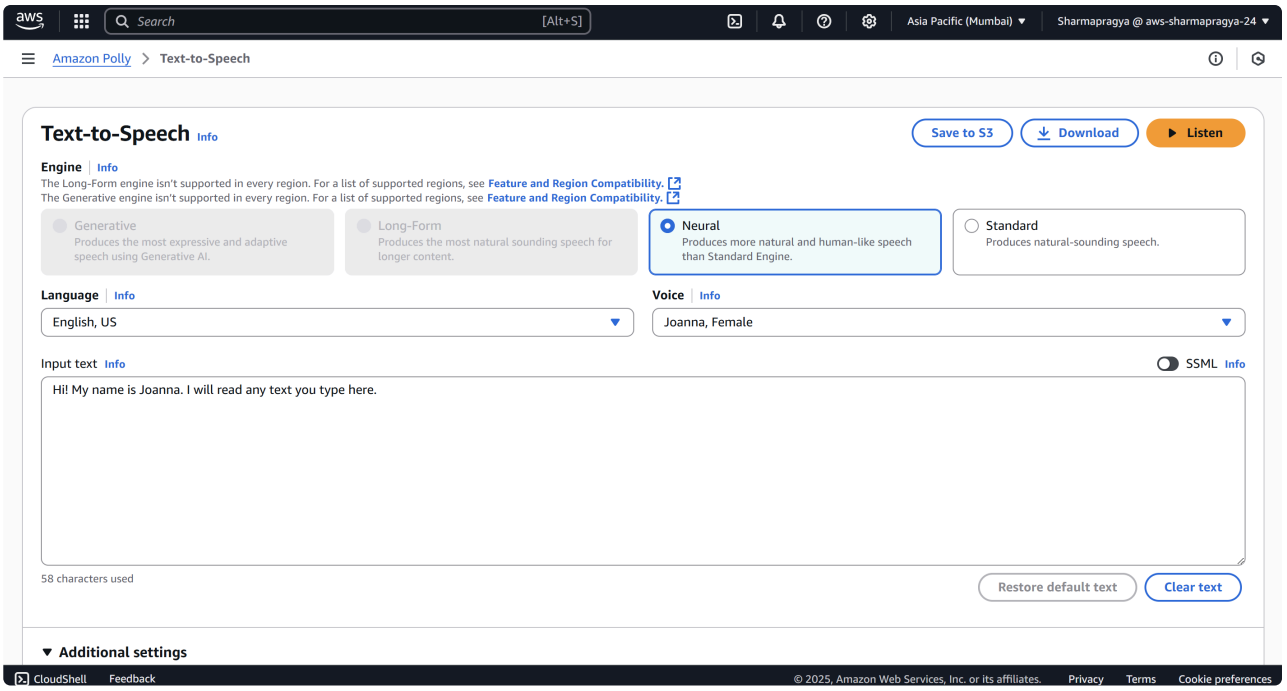
- Amazon Polly: Converts text to life like speech with customizable features.
- AWS Management Console: Manages accounts and configures Amazon Polly.
- AWS IAM: Ensures secure access by managing user permissions.

Architectural Diagram

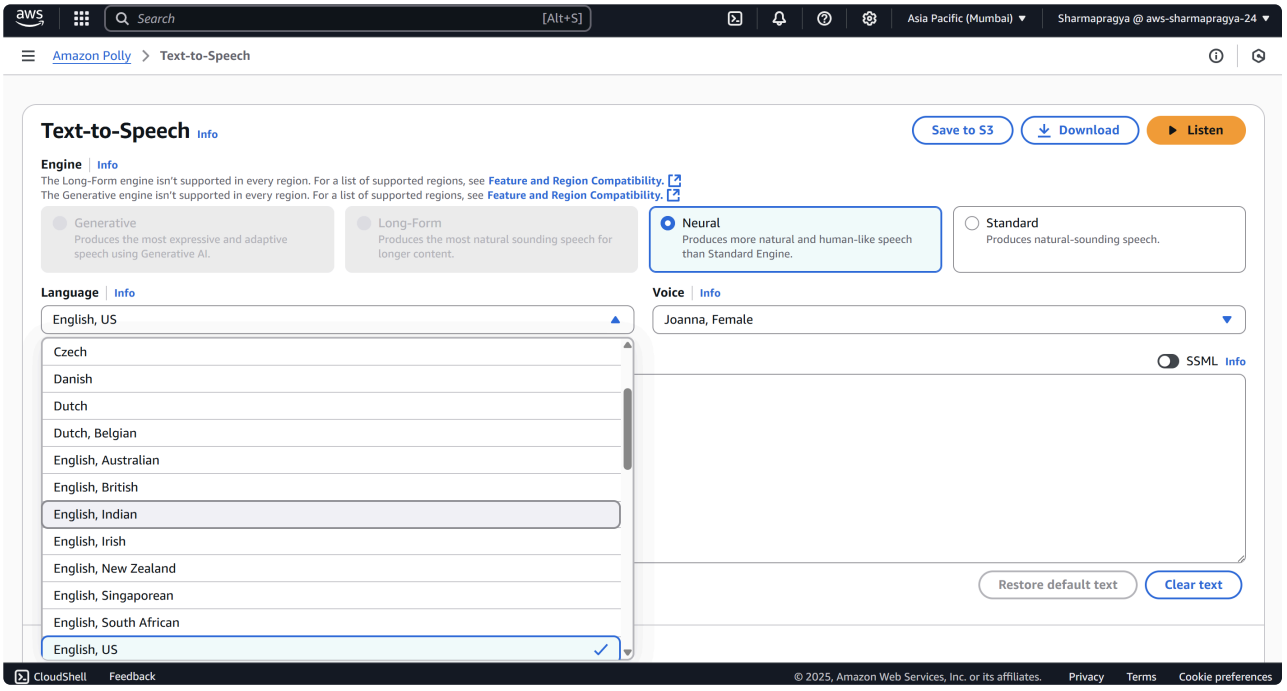


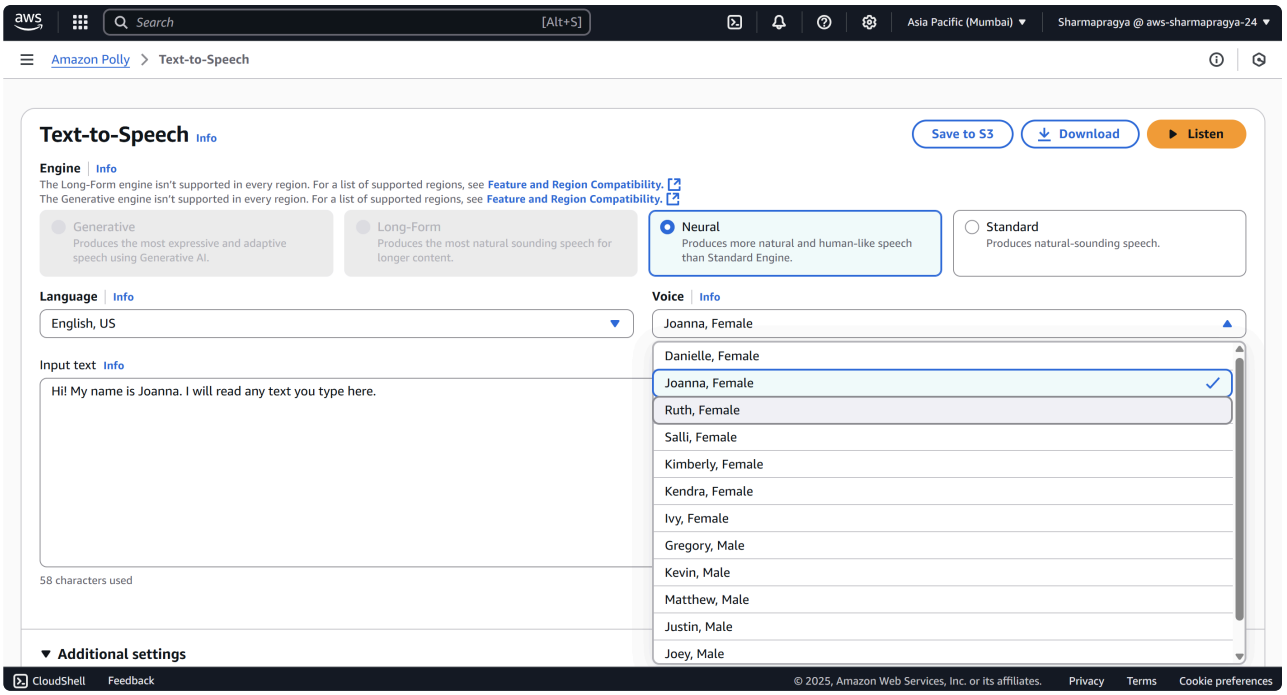
Steps for building amazon polly text narrator

1. Exploring Amazon Polly
   ![[Screenshot 2025-06-22 135948.png]



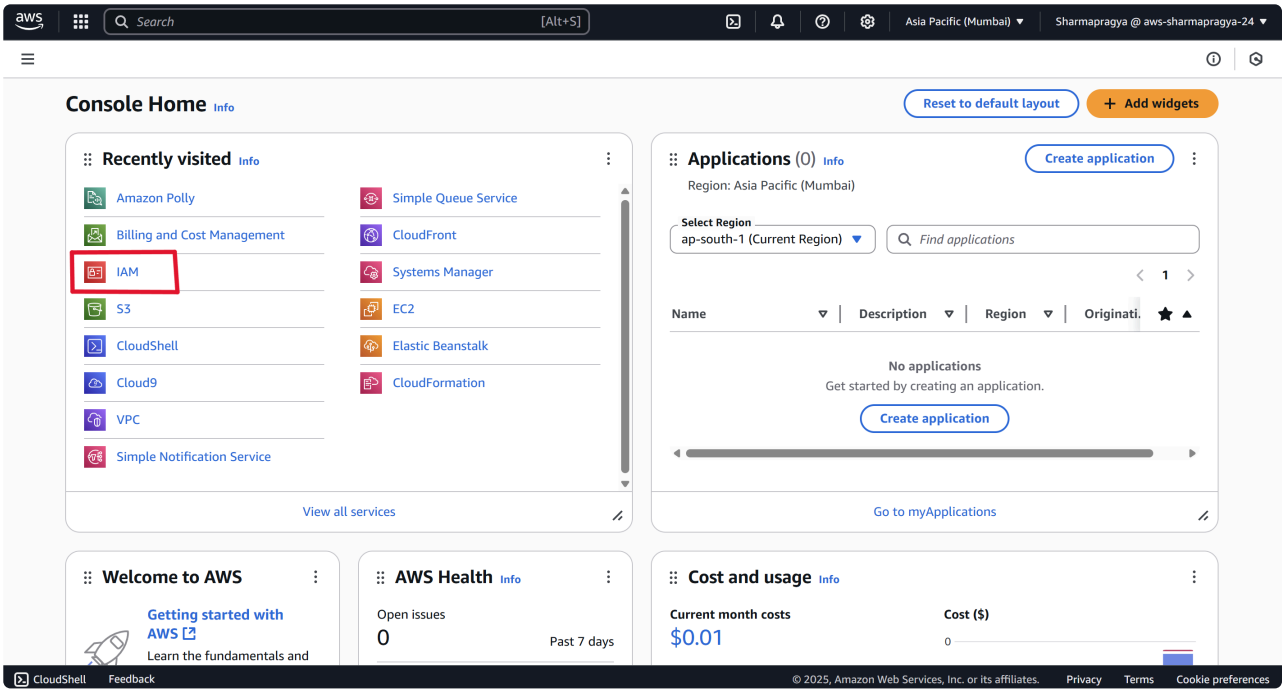
we can also change the language and voice

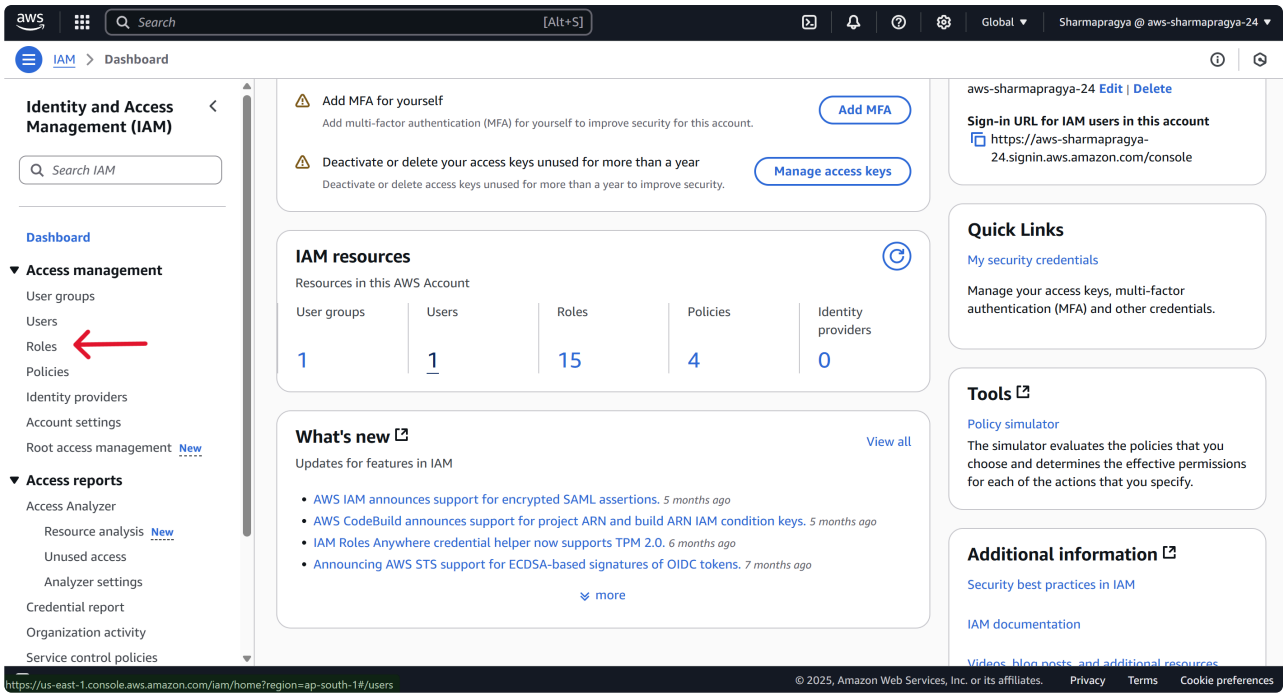




2. Create an IAM role

AWS Lambda needs permission to access Amazon Polly and Amazon S3.




Search [Alt+S]
Global
Sharmapragya @ aws-sharmapragya-24
IAM > Dashboard
Identity and Access Management (IAM)
Search IAM
Dashboard
Access management
User groups
Users
Roles
Policies
Identity providers
Account settings
Root access management New
Access reports
Access Analyzer
Resource analysis New
Unused access
Analyzer settings
Credential report
Organization activity
Service control policies
Add MFA for yourself
Add multi-factor authentication (MFA) for yourself to improve security for this account.
Add MFA
Deactivate or delete your access keys unused for more than a year
Deactivate or delete access keys unused for more than a year to improve security.
Manage access keys
IAM resources
Resources in this AWS Account
User groups 1
Users 1
Roles 15
Policies 4
Identity providers 0
What's new
View all
Updates for features in IAM
AWS IAM announces support for encrypted SAML assertions. 5 months ago
AWS CodeBuild announces support for project ARN and build ARN IAM condition keys. 5 months ago
IAM Roles Anywhere credential helper now supports TPM 2.0. 6 months ago
Announcing AWS STS support for ECDSA-based signatures of OIDC tokens. 7 months ago
more
aws-sharmapragya-24 Edit | Delete
Sign-in URL for IAM users in this account
https://aws-sharmapragya-24.signin.aws.amazon.com/console
Quick Links
My security credentials
Manage your access keys, multi-factor authentication (MFA) and other credentials.
Tools
Policy simulator
The simulator evaluates the policies that you choose and determines the effective permissions for each of the actions that you specify.
Additional information
Security best practices in IAM
IAM documentation
Videos, blog posts, and additional resources
https://us-east-1.console.aws.amazon.com/iam/home?region=ap-south-1#/users
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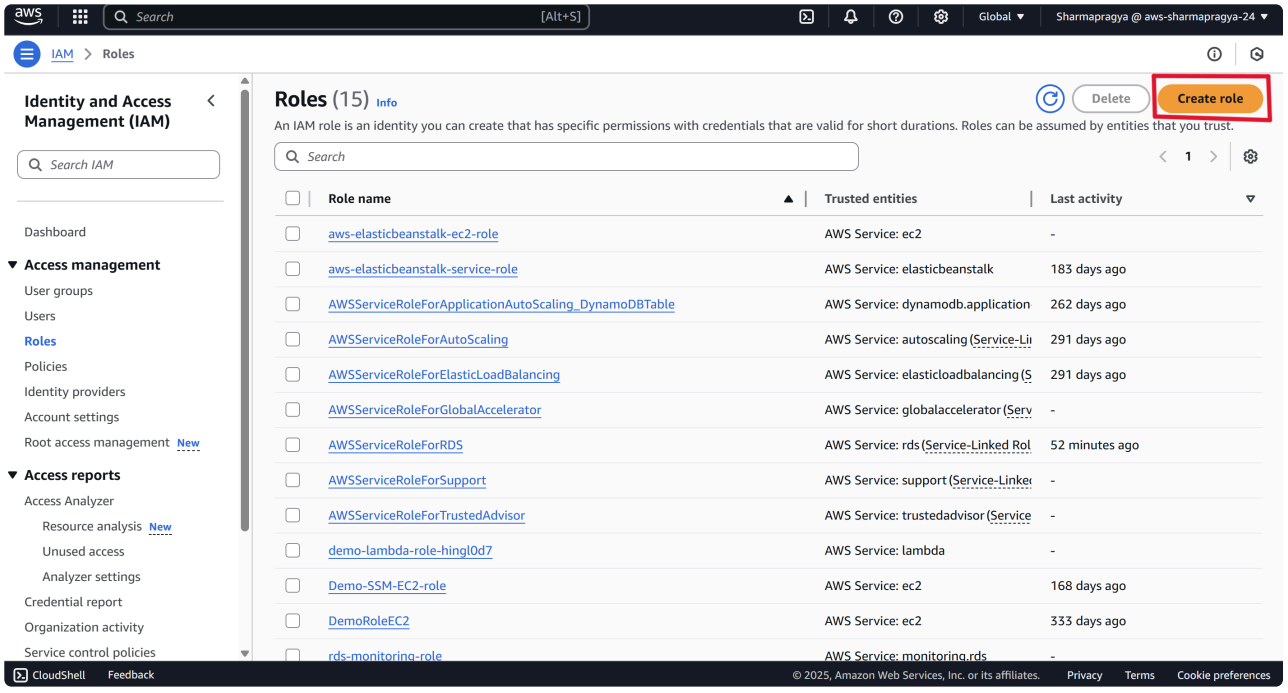
Search [Alt+S]
Global
Sharmapragya @ aws-sharmapragya-24
IAM > Roles
Identity and Access Management (IAM)
Search IAM
Dashboard
Access management
User groups
Users
Roles
Policies
Identity providers
Account settings
Root access management New
Access reports
Access Analyzer
Resource analysis New
Unused access
Analyzer settings
Credential report
Organization activity
Service control policies
Roles (15) Info
An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.
Delete
Create role
Search
1
Role name
Trusted entities
Last activity
aws-elasticbeanstalk-ec2-role AWS Service: ec2 -
aws-elasticbeanstalk-service-role AWS Service: elasticbeanstalk 183 days ago
AWSServiceRoleForApplicationAutoScaling_DynamoDBTable AWS Service: dynamodb.application 262 days ago
AWSServiceRoleForAutoScaling AWS Service: autoscaling (Service-Li 291 days ago
AWSServiceRoleForElasticLoadBalancing AWS Service: elasticloadbalancing (S 291 days ago
AWSServiceRoleForGlobalAccelerator AWS Service: globalaccelerator (Serv -
AWSServiceRoleForRDS AWS Service: rds (Service-Linked Rol 52 minutes ago
AWSServiceRoleForSupport AWS Service: support (Service-Linke -
AWSServiceRoleForTrustedAdvisor AWS Service: trustedadvisor (Service -
demo-lambda-role-hingl0d7 AWS Service: lambda -
Demo-SSM-EC2-role AWS Service: ec2 168 days ago
DemoRoleEC2 AWS Service: ec2 333 days ago
rds-monitoring-role AWS Service: monitoring.rds -
CloudShell
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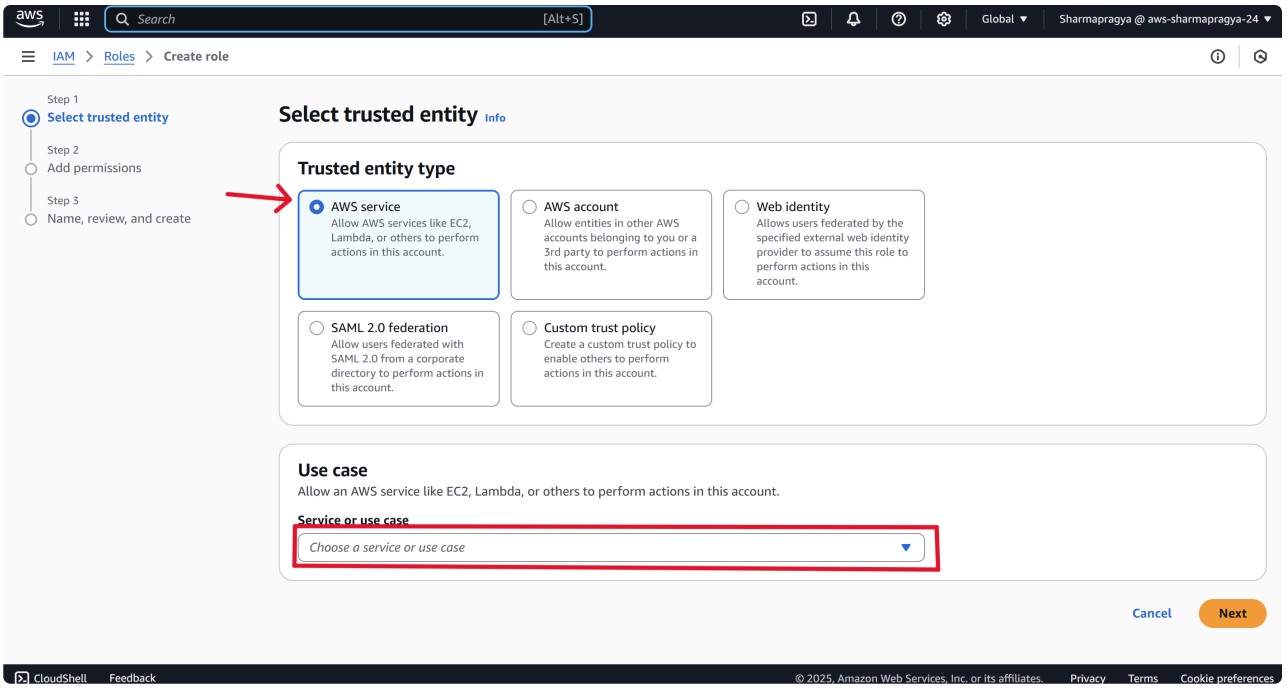
Search [Alt+S]
Global
Sharmapragya @ aws-sharmapragya-24
IAM > Roles > Create role
Step 1
Select trusted entity
Step 2
Add permissions
Step 3
Name, review, and create
Select trusted entity Info
Trusted entity type
AWS service
Allow AWS services like EC2, Lambda, or others to perform actions in this account.
AWS account
Allow entities in other AWS accounts belonging to you or a 3rd party to perform actions in this account.
Web identity
Allows users federated by the specified external web identity provider to assume this role to perform actions in this account.
SAML 2.0 federation
Allow users federated with SAML 2.0 from a corporate directory to perform actions in this account.
Custom trust policy
Create a custom trust policy to enable others to perform actions in this account.
Use case
Allow an AWS service like EC2, Lambda, or others to perform actions in this account.
Service or use case
Choose a service or use case
Cancel
Next
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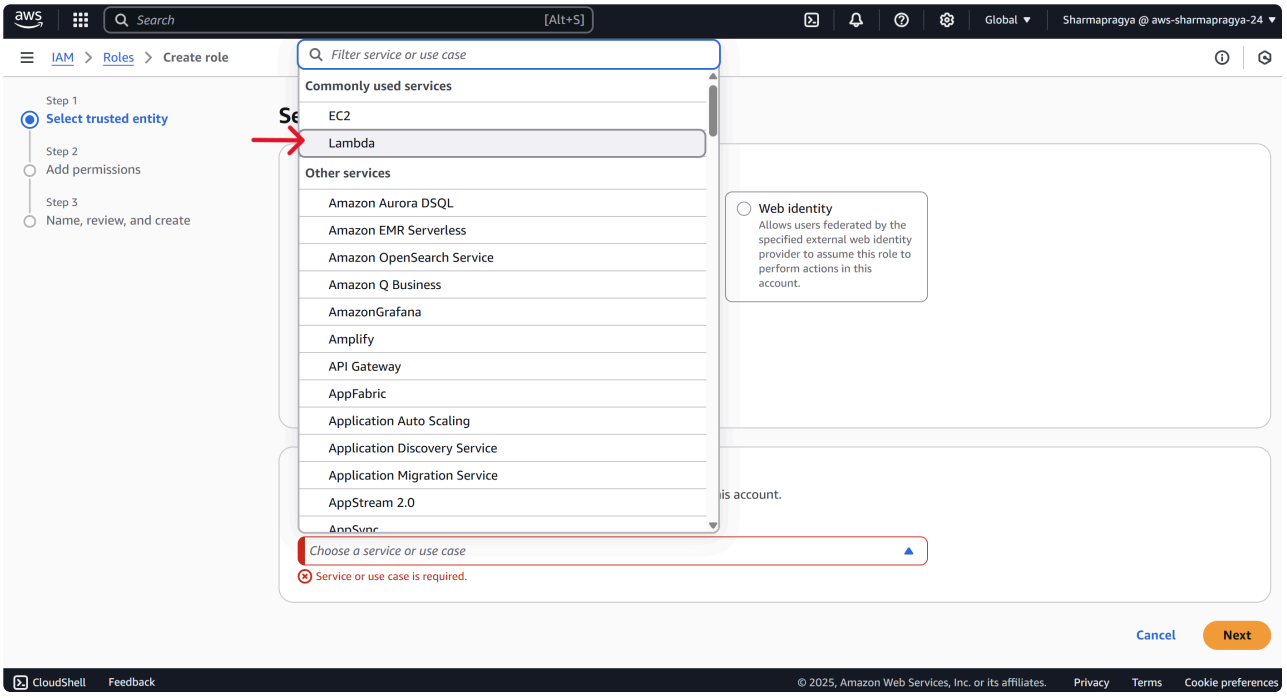
Search [Alt+S]
Global
Sharmapragya @ aws-sharmapragya-24
IAM > Roles > Create role
Filter service or use case
Commonly used services
EC2
Lambda
Other services
Amazon Aurora DSQL
Amazon EMR Serverless
Amazon OpenSearch Service
Amazon Q Business
AmazonGrafana
Amplify
API Gateway
AppFabric
Application Auto Scaling
Application Discovery Service
Application Migration Service
AppStream 2.0
AppSync
Web identity
Allows users federated by the specified external web identity provider to assume this role to perform actions in this account.
Choose a service or use case
Service or use case is required.
Cancel
Next
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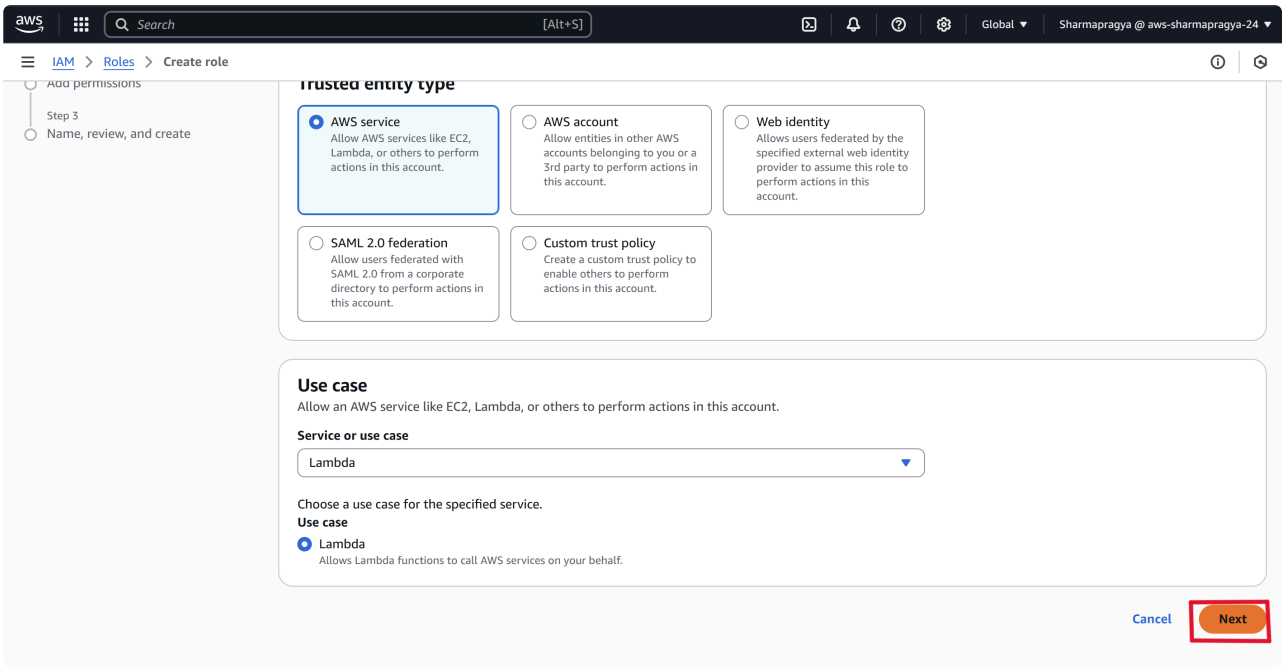
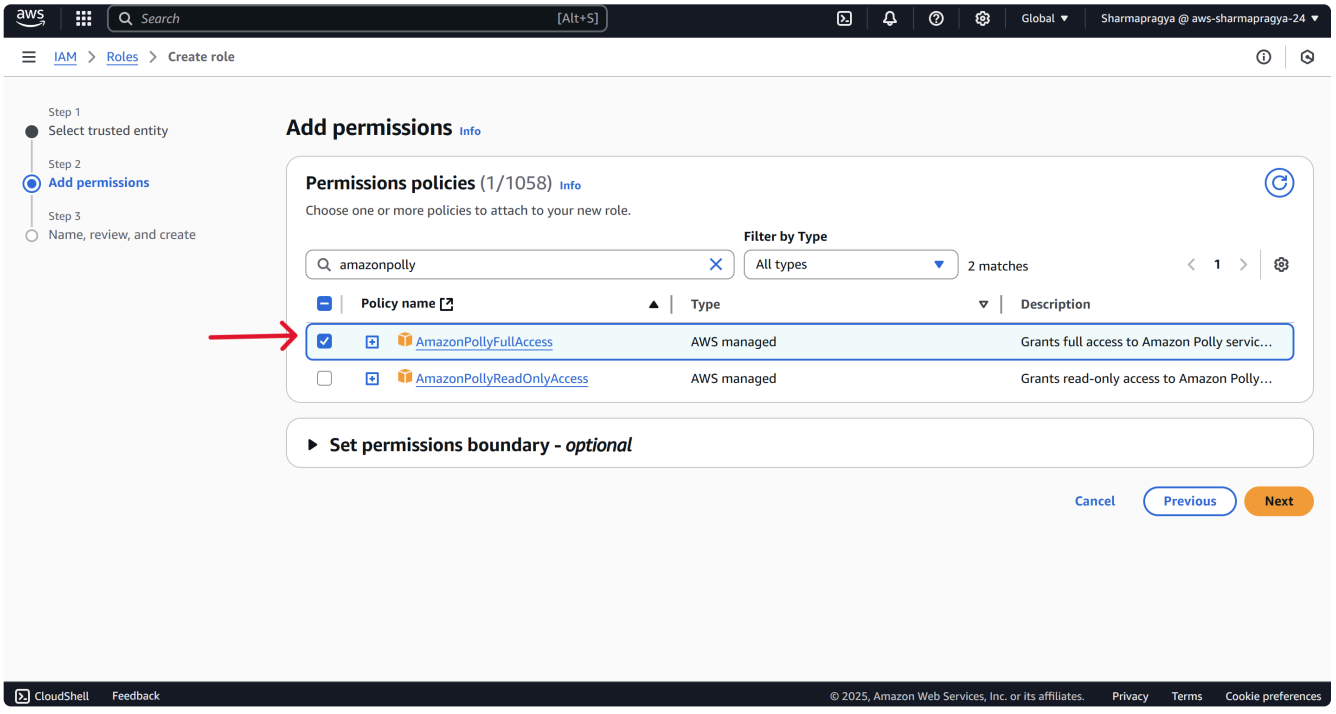
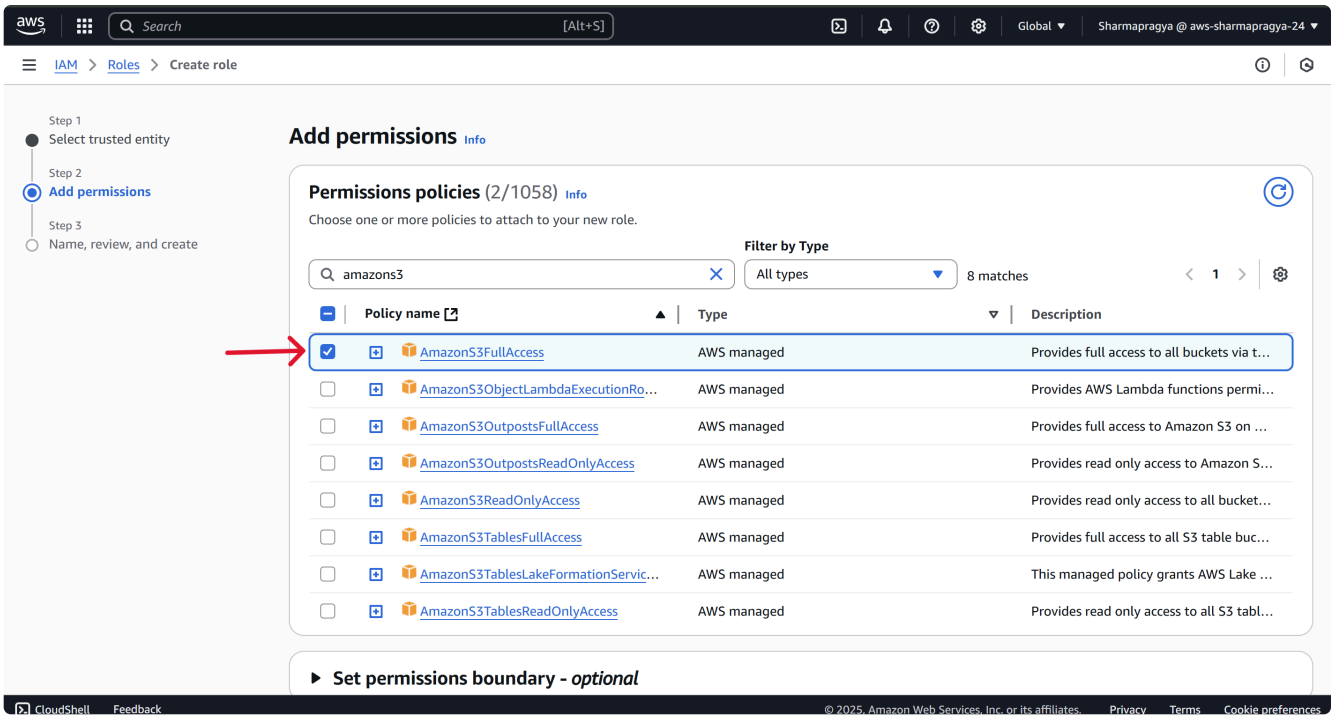


3. Attach the following policies:

- `AmazonPollyFullAccess`
- `AmazonS3FullAccess`




Search [Alt+S]
Global
Sharmapragya @ aws-sharmapragya-24
IAM > Roles > Create role
Step 1
Select trusted entity
Step 2
Add permissions
Step 3
Name, review, and create
Add permissions Info
Permissions policies (2/1058) Info
Choose one or more policies to attach to your new role.
Filter by Type
amazons3
All types
8 matches
1
Policy name
Type
Description
AmazonS3FullAccess AWS managed Provides full access to all buckets via t...
AmazonS3ObjectLambdaExecutionRo... AWS managed Provides AWS Lambda functions permi...
AmazonS3OutpostsFullAccess AWS managed Provides full access to Amazon S3 on ...
AmazonS3OutpostsReadOnlyAccess AWS managed Provides read only access to Amazon S...
AmazonS3ReadOnlyAccess AWS managed Provides read only access to all bucket...
AmazonS3TablesFullAccess AWS managed Provides full access to all S3 table buc...
AmazonS3TablesLakeFormationServic... AWS managed This managed policy grants AWS Lake ...
AmazonS3TablesReadOnlyAccess AWS managed Provides read only access to all S3 tabl...
Set permissions boundary - optional
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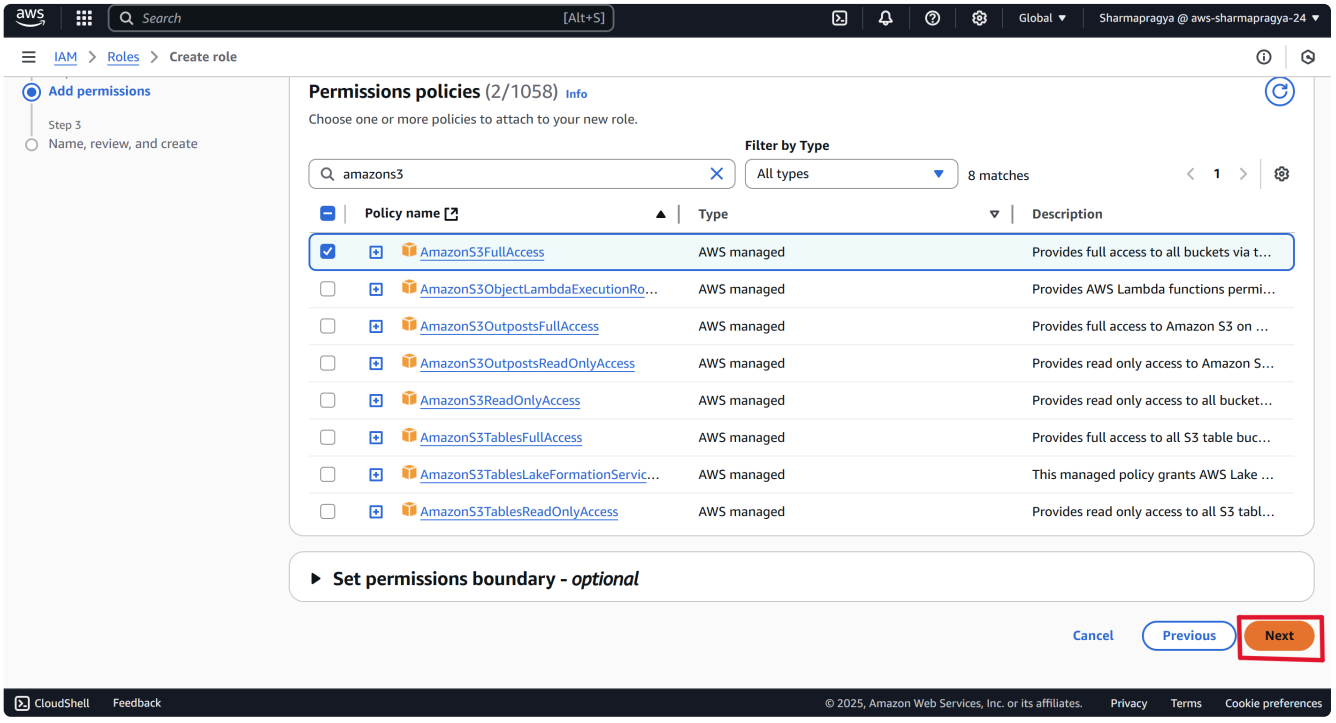
Search [Alt+S]
Global
Sharmapragya @ aws-sharmapragya-24
IAM > Roles > Create role
Add permissions
Step 3
Name, review, and create
Permissions policies (2/1058) Info
Choose one or more policies to attach to your new role.
Filter by Type
amazons3
All types
8 matches
1
Policy name
Type
Description
AmazonS3FullAccess AWS managed Provides full access to all buckets via t...
AmazonS3ObjectLambdaExecutionRo... AWS managed Provides AWS Lambda functions permi...
AmazonS3OutpostsFullAccess AWS managed Provides full access to Amazon S3 on ...
AmazonS3OutpostsReadOnlyAccess AWS managed Provides read only access to Amazon S...
AmazonS3ReadOnlyAccess AWS managed Provides read only access to all bucket...
AmazonS3TablesFullAccess AWS managed Provides full access to all S3 table buc...
AmazonS3TablesLakeFormationServic... AWS managed This managed policy grants AWS Lake ...
AmazonS3TablesReadOnlyAccess AWS managed Provides read only access to all S3 tabl...
Set permissions boundary - optional
Cancel
Previous
Next
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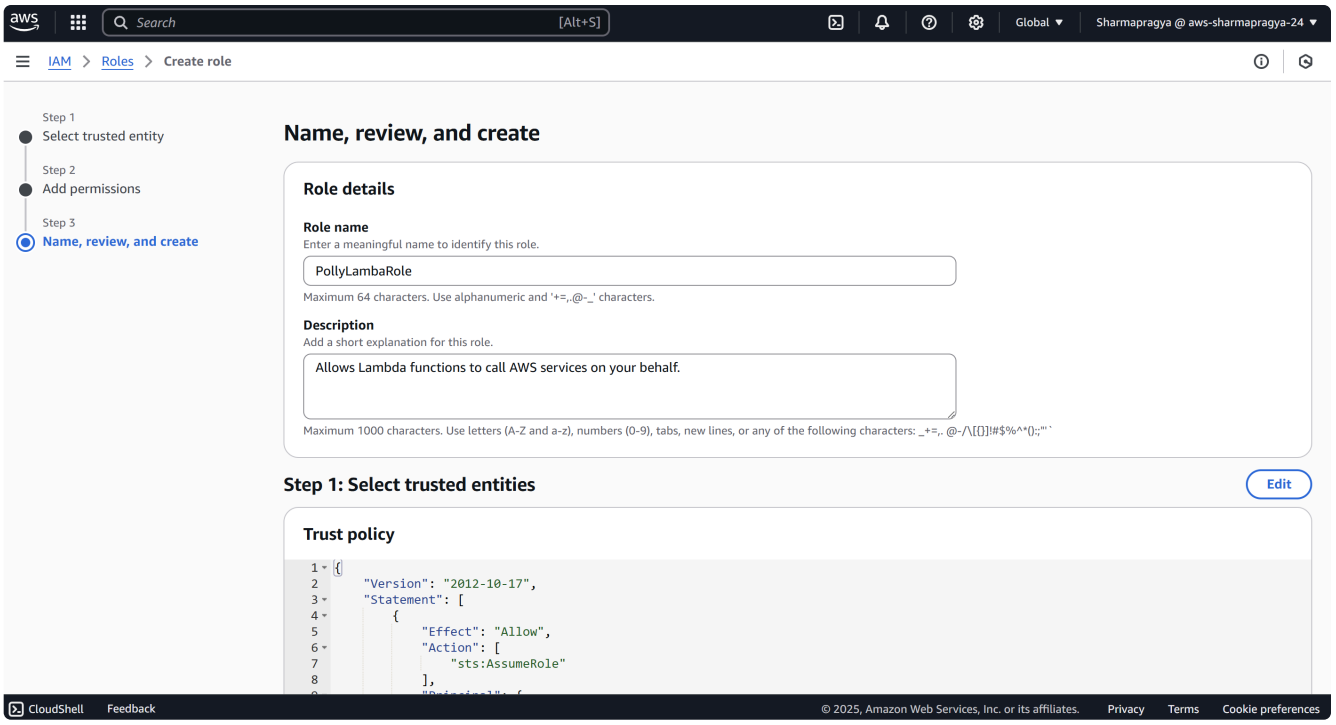
Search [Alt+S]
Global
Sharmapragya @ aws-sharmapragya-24
IAM > Roles > Create role
Step 1
Select trusted entity
Step 2
Add permissions
Step 3
Name, review, and create
Name, review, and create
Role details
Role name
Enter a meaningful name to identify this role.
PollyLambaRole
Maximum 64 characters. Use alphanumeric and '+=,.@-_' characters.
Description
Add a short explanation for this role.
Allows Lambda functions to call AWS services on your behalf.
Maximum 1000 characters. Use letters (A-Z and a-z), numbers (0-9), tabs, new lines, or any of the following characters: _+=,. @-/\[{}]!#$%^*();:"'`
Step 1: Select trusted entities
Edit
Trust policy
{
"Version": "2012-10-17",
"Statement": [
{
"Effect": "Allow",
"Action": [
"sts:AssumeRole"
],
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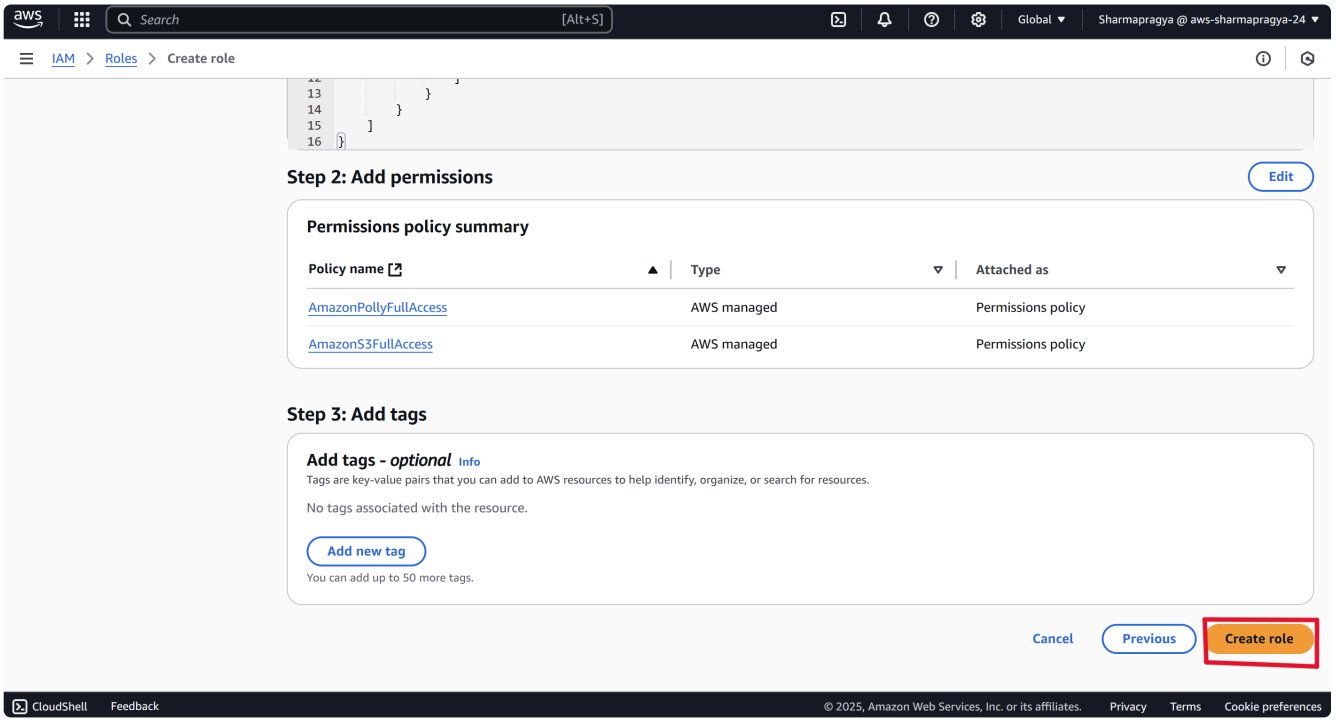
Search [Alt+S]
Global
Sharmapragya @ aws-sharmapragya-24
IAM > Roles > Create role
}
}
]
}
Step 2: Add permissions
Edit
Permissions policy summary
Policy name
Type
Attached as
AmazonPollyFullAccess
AWS managed
Permissions policy
AmazonS3FullAccess
AWS managed
Permissions policy
Step 3: Add tags
Add tags - optional
Info
Tags are key-value pairs that you can add to AWS resources to help identify, organize, or search for resources.
No tags associated with the resource.
Add new tag
You can add up to 50 more tags.
Cancel
Previous
Create role
CloudShell
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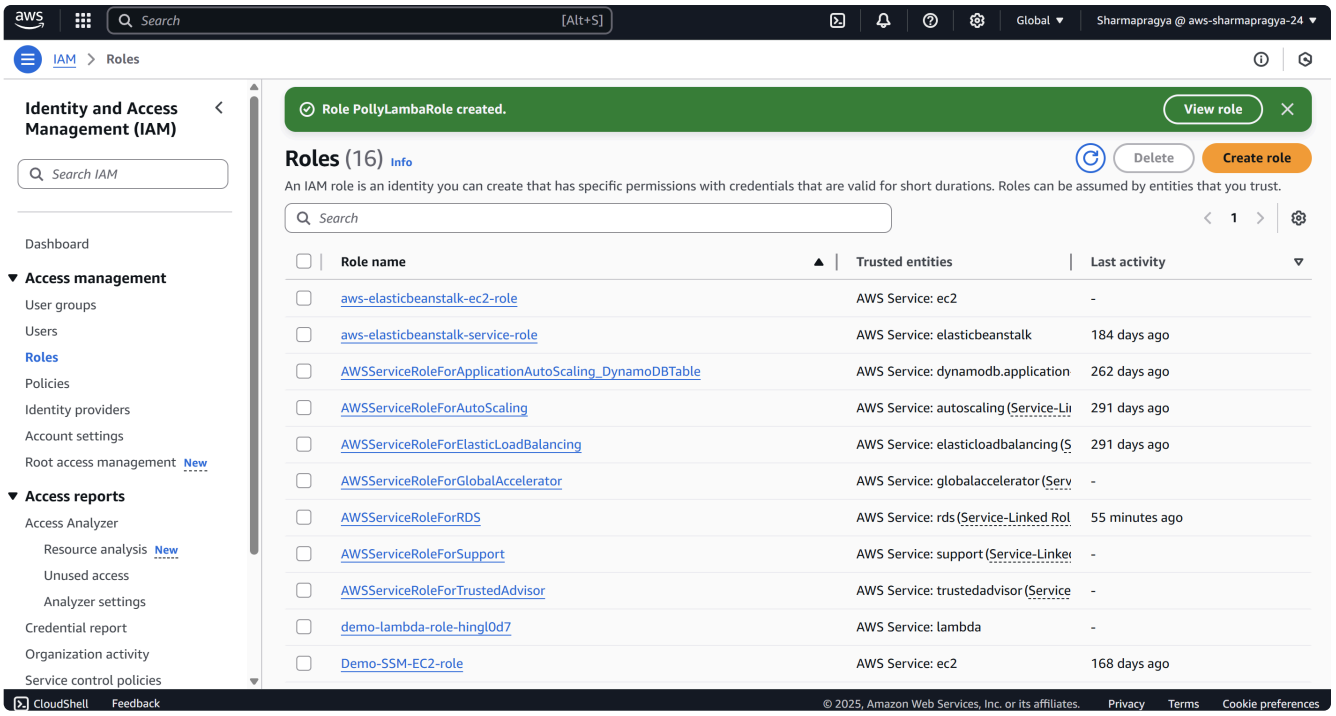
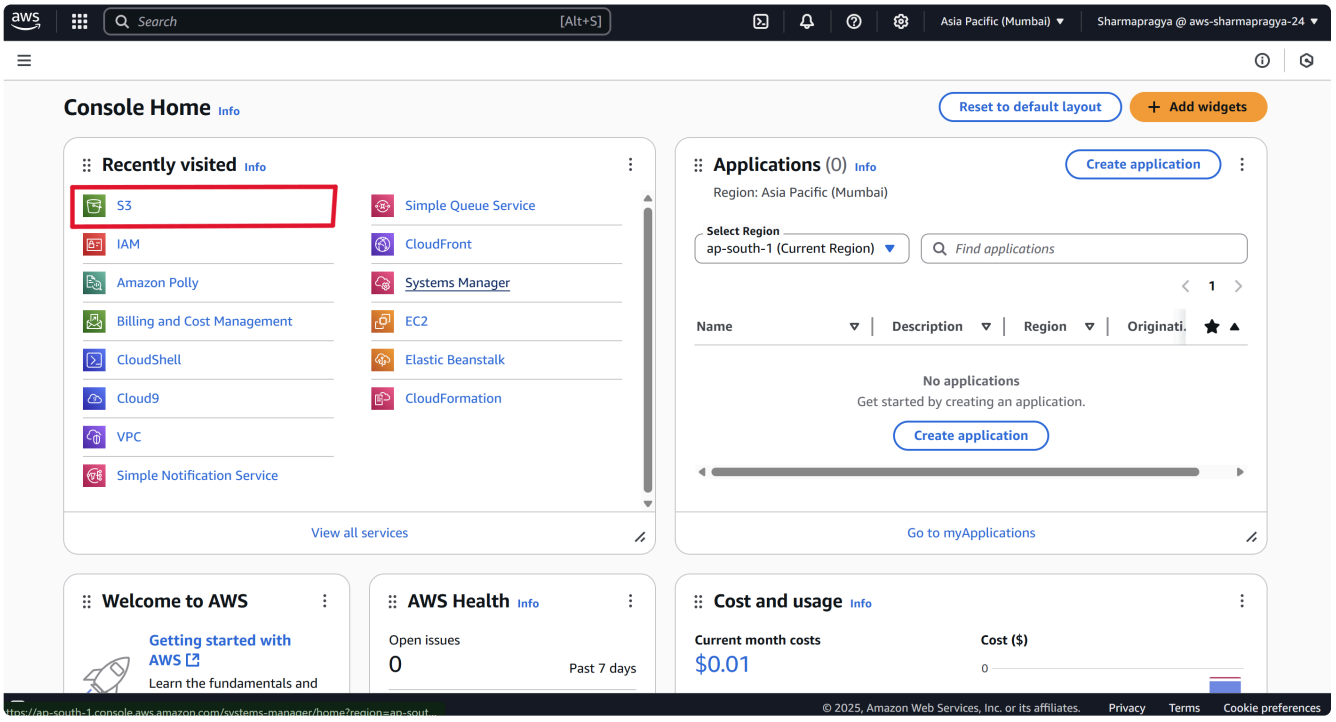
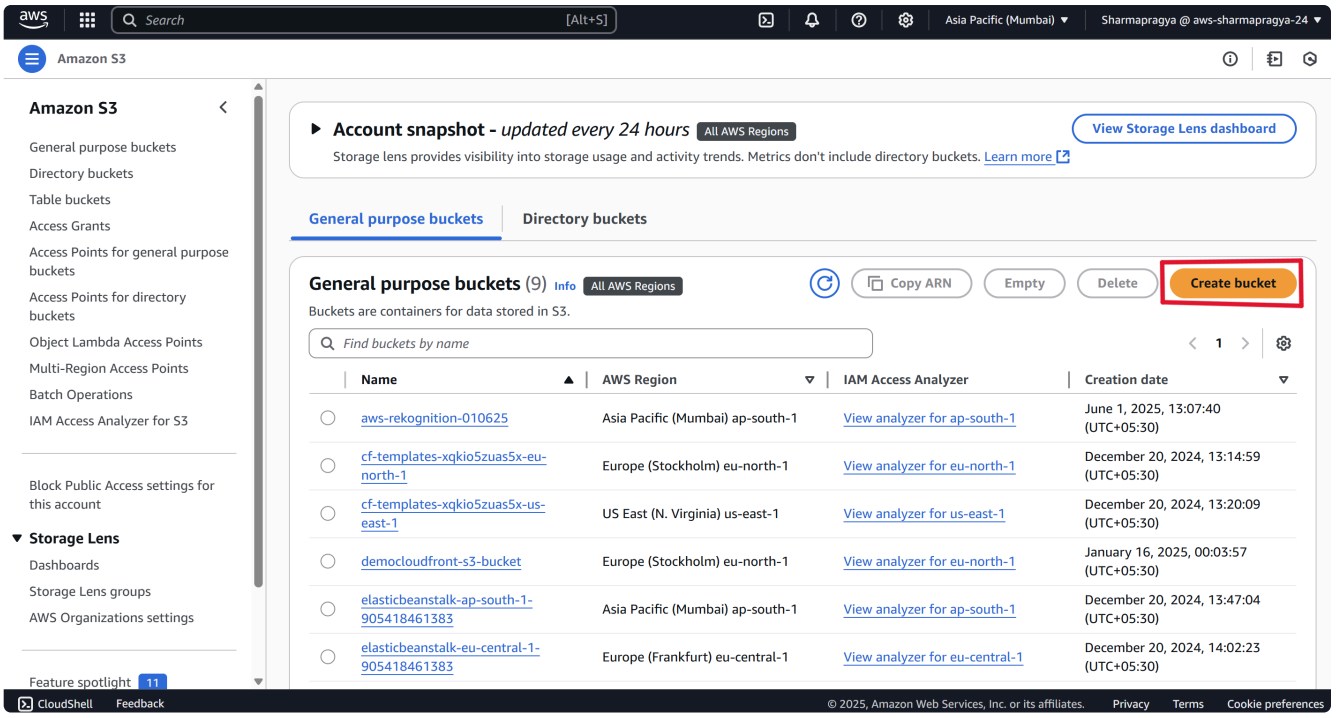


4. Now create an empty S3 bucket




Search [Alt+S]
Asia Pacific (Mumbai)
Sharmapragya @ aws-sharmapragya-24
Amazon S3
Amazon S3
General purpose buckets
Directory buckets
Table buckets
Access Grants
Access Points for general purpose buckets
Access Points for directory buckets
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
Storage Lens groups
AWS Organizations settings
Feature spotlight 11
Account snapshot - updated every 24 hours All AWS Regions
Storage lens provides visibility into storage usage and activity trends. Metrics don't include directory buckets. Learn more
View Storage Lens dashboard
General purpose buckets
Directory buckets
General purpose buckets (9) Info All AWS Regions
Buckets are containers for data stored in S3.
Copy ARN
Empty
Delete
Create bucket
Find buckets by name
Name
AWS Region
IAM Access Analyzer
Creation date
aws-rekognition-010625 Asia Pacific (Mumbai) ap-south-1 View analyzer for ap-south-1 June 1, 2025, 13:07:40 (UTC+05:30)
cf-templates-xqkio5zuas5x-eu-north-1 Europe (Stockholm) eu-north-1 View analyzer for eu-north-1 December 20, 2024, 13:14:59 (UTC+05:30)
cf-templates-xqkio5zuas5x-us-east-1 US East (N. Virginia) us-east-1 View analyzer for us-east-1 December 20, 2024, 13:20:09 (UTC+05:30)
democloudfront-s3-bucket Europe (Stockholm) eu-north-1 View analyzer for eu-north-1 January 16, 2025, 00:03:57 (UTC+05:30)
elasticbeanstalk-ap-south-1-905418461383 Asia Pacific (Mumbai) ap-south-1 View analyzer for ap-south-1 December 20, 2024, 13:47:04 (UTC+05:30)
elasticbeanstalk-eu-central-1-905418461383 Europe (Frankfurt) eu-central-1 View analyzer for eu-central-1 December 20, 2024, 14:02:23 (UTC+05:30)
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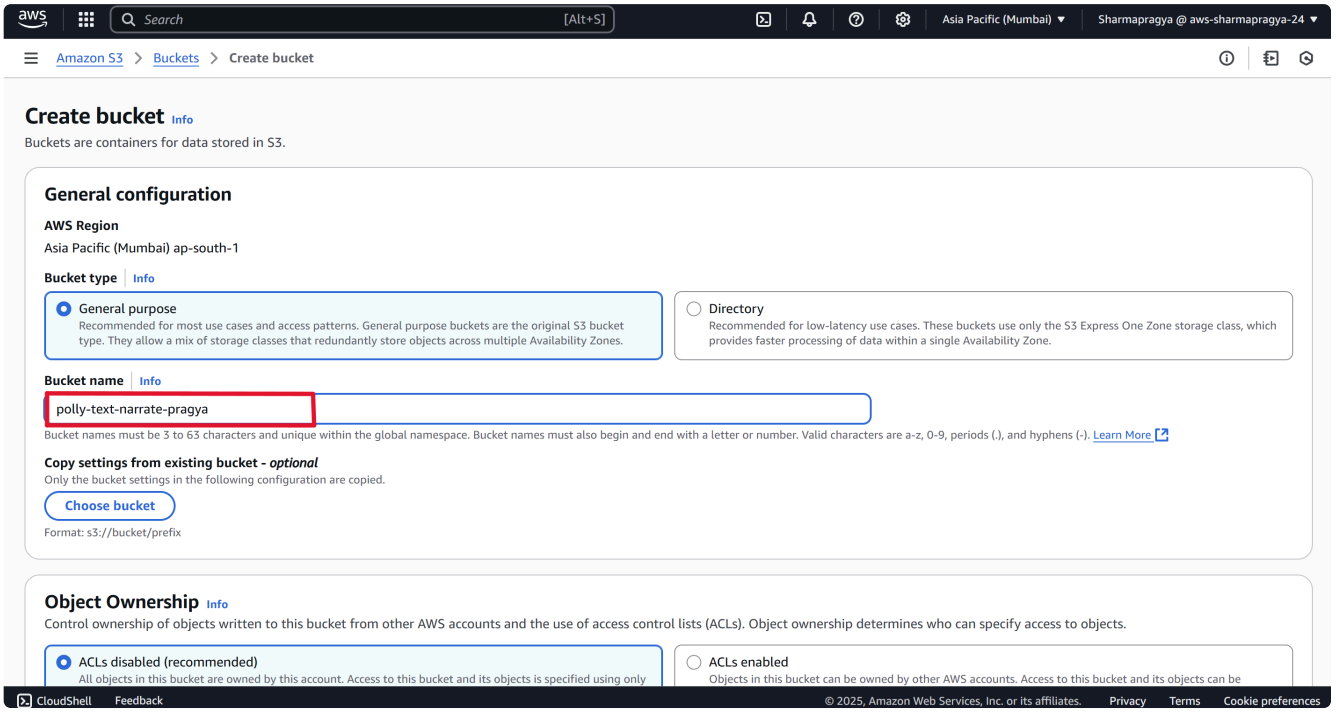
Search [Alt+S]
Asia Pacific (Mumbai)
Sharmapragya @ aws-sharmapragya-24
Amazon S3 > Buckets > Create bucket
Create bucket Info
Buckets are containers for data stored in S3.
General configuration
AWS Region
Asia Pacific (Mumbai) ap-south-1
Bucket type Info
General purpose
Recommended for most use cases 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
polly-text-narrate-pragya
Bucket names must be 3 to 63 characters and unique within the global namespace. Bucket names must also begin and end with a letter or number. Valid characters are a-z, 0-9, periods (.), and hyphens (-). Learn More
Copy settings from existing bucket - optional
Only the bucket settings in the following configuration are copied.
Choose bucket
Format: s3://bucket/prefix
Object Ownership Info
Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.
ACLs disabled (recommended)
All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only
ACLs enabled
Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be
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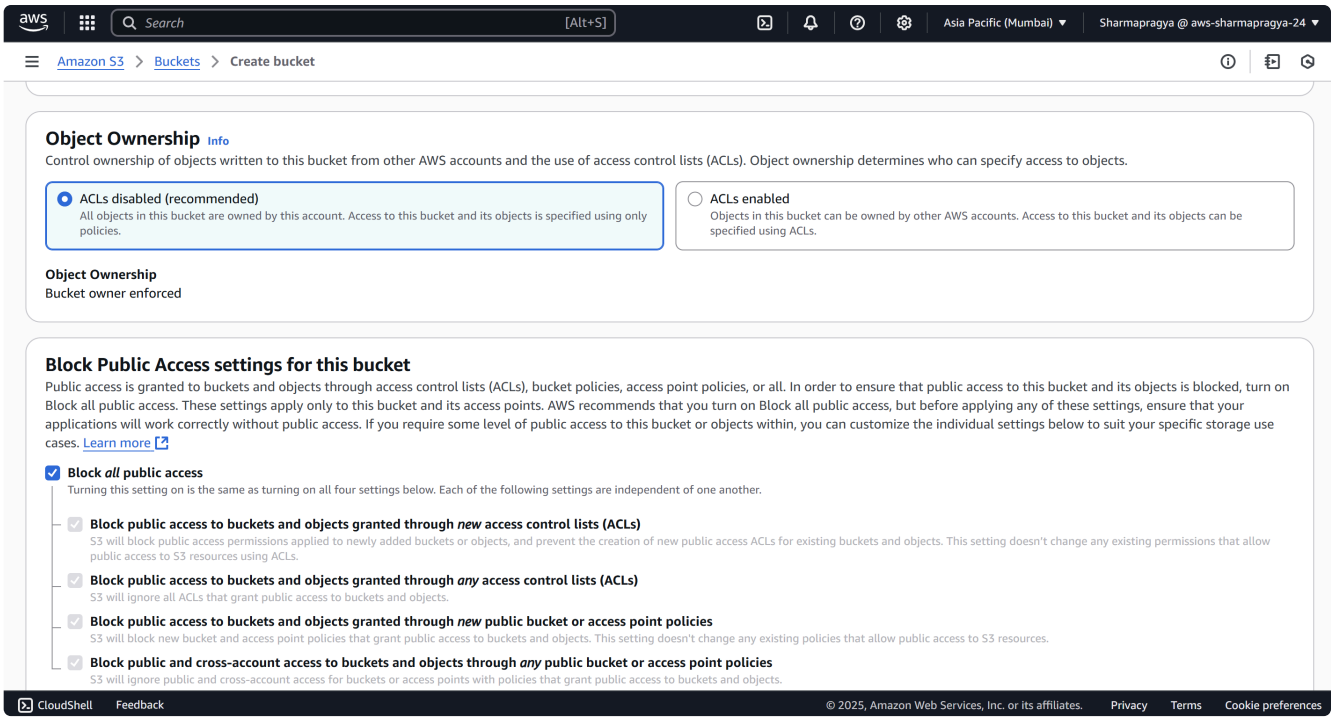
aws
Search
[Alt+S]
Asia Pacific (Mumbai)
Sharmapragya @ aws-sharmapragya-24
Amazon S3 > Buckets > Create bucket
Object Ownership Info
Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.
ACLs disabled (recommended)
All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.
ACLs enabled
Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.
Object Ownership
Bucket owner enforced
Block Public Access settings for this bucket
Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to this bucket and its objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to this bucket or objects within, you can customize the individual settings below to suit your specific storage use cases. Learn more
Block all public access
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.
Block public access to buckets and objects granted through new access control lists (ACLs)
S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.
Block public access to buckets and objects granted through any access control lists (ACLs)
S3 will ignore all ACLs that grant public access to buckets and objects.
Block public access to buckets and objects granted through new public bucket or access point policies
S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.
Block public and cross-account access to buckets and objects through any public bucket or access point policies
S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.
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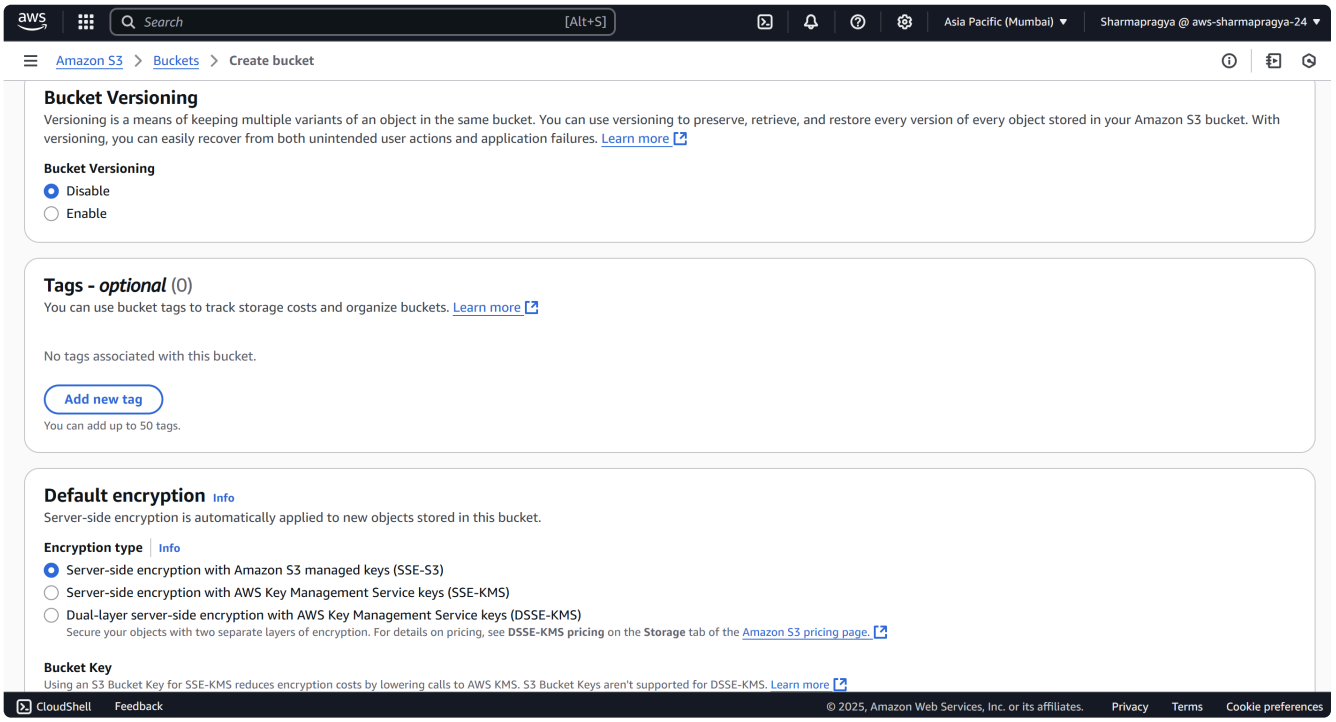
aws
Search
[Alt+S]
Asia Pacific (Mumbai)
Sharmapragya @ aws-sharmapragya-24
Amazon S3 > Buckets > Create bucket
Bucket Versioning
Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. Learn more
Bucket Versioning
Disable
Enable
Tags - optional (0)
You can use bucket tags to track storage costs and organize buckets. Learn more
No tags associated with this bucket.
Add new tag
You can add up to 50 tags.
Default encryption Info
Server-side encryption is automatically applied to new objects stored in this bucket.
Encryption type Info
Server-side encryption with Amazon S3 managed keys (SSE-S3)
Server-side encryption with AWS Key Management Service keys (SSE-KMS)
Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)
Secure your objects with two separate layers of encryption. For details on pricing, see DSSE-KMS pricing on the Storage tab of the Amazon S3 pricing page.
Bucket Key
Using an S3 Bucket Key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSSE-KMS. Learn more
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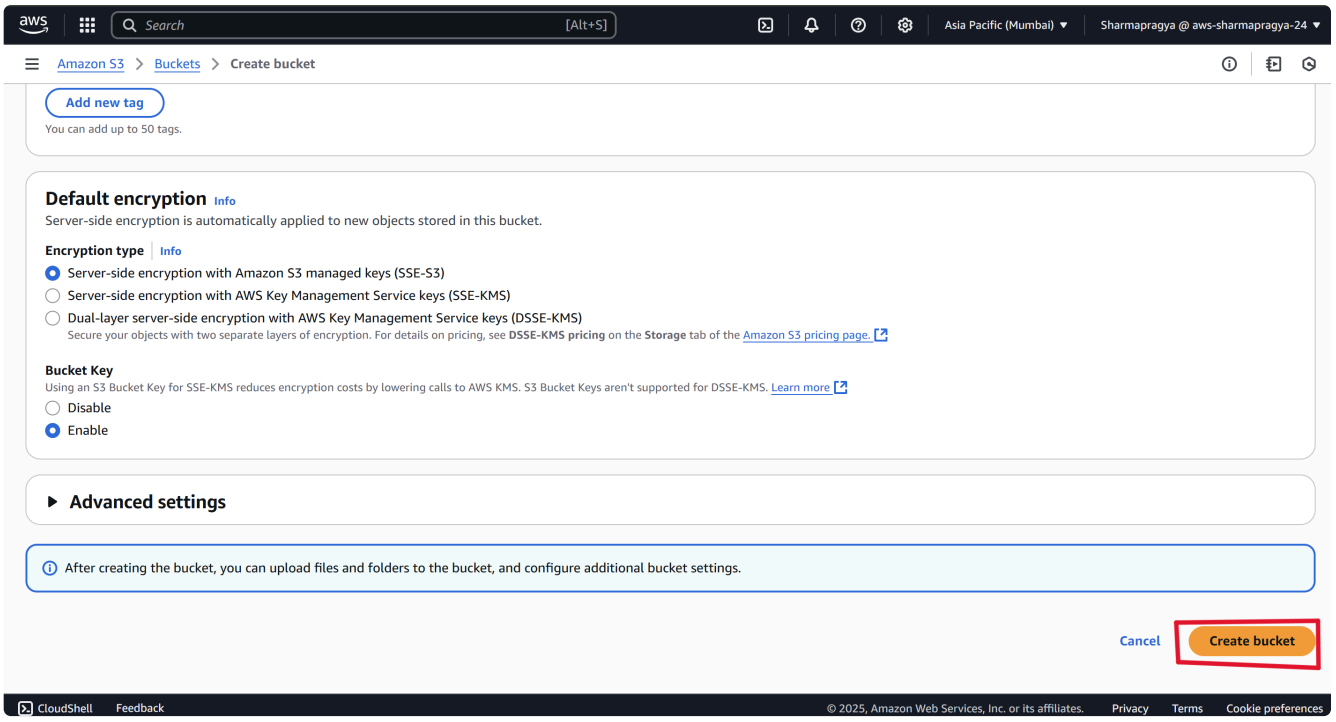
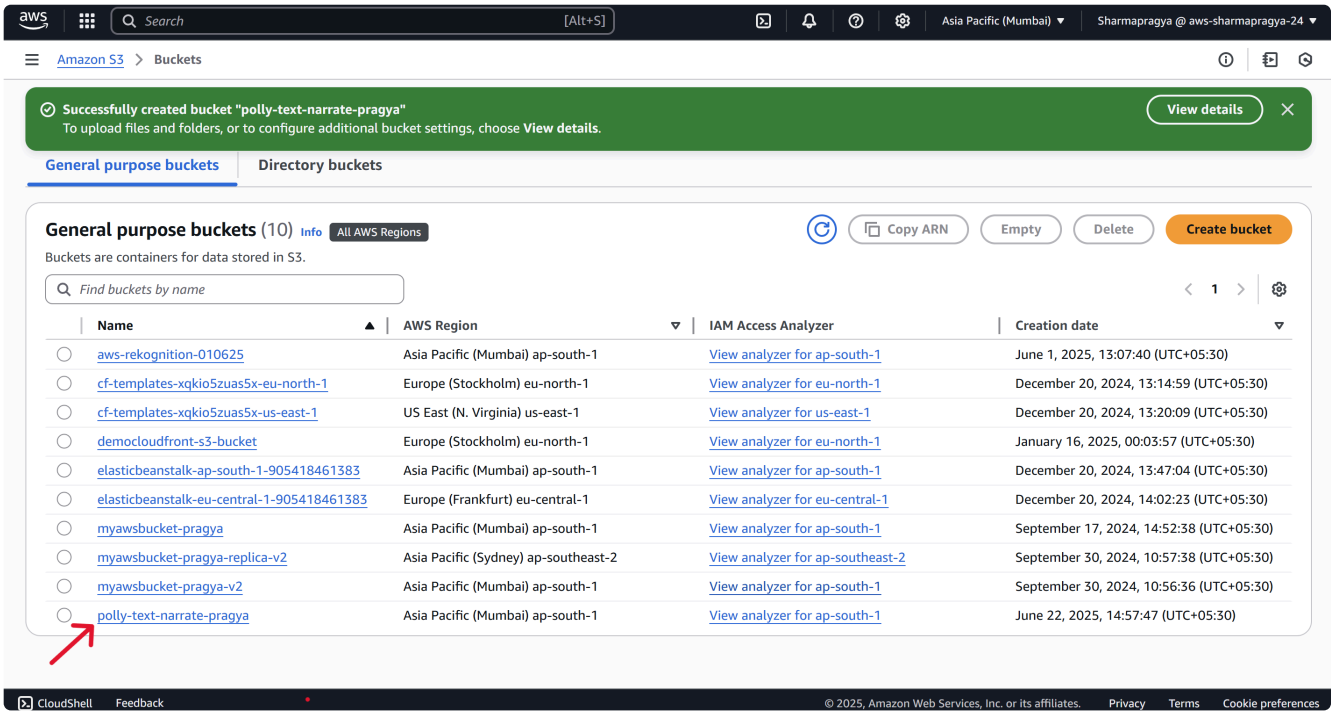
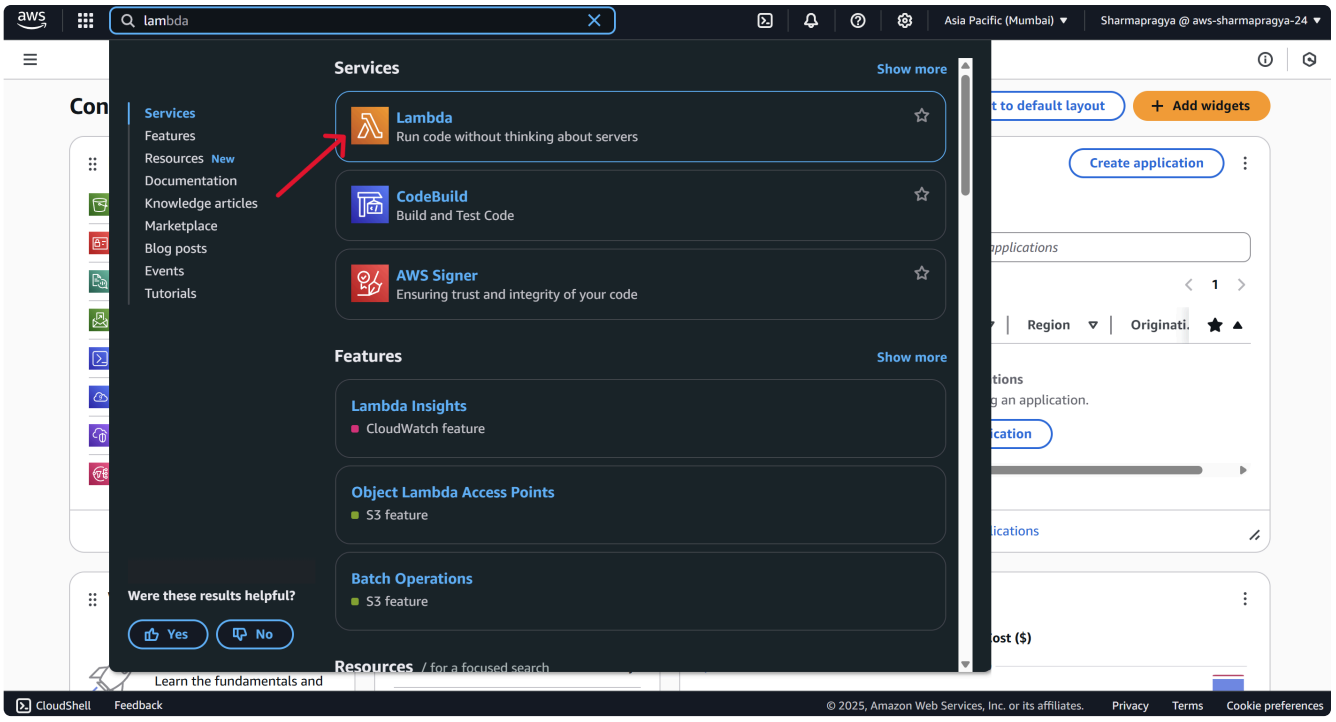




5. Create a Lambda Function

This function triggers when a `.txt` file is uploaded to the S3 bucket and uses Polly to generate speech.


lambda
Asia Pacific (Mumbai)
Sharmapragya @ aws-sharmapragya-24
Services
Features
Resources New
Documentation
Knowledge articles
Marketplace
Blog posts
Events
Tutorials
Services
Show more
Lambda
Run code without thinking about servers
CodeBuild
Build and Test Code
AWS Signer
Ensuring trust and integrity of your code
Features
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CloudWatch feature
Object Lambda Access Points
S3 feature
Batch Operations
S3 feature
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Create application
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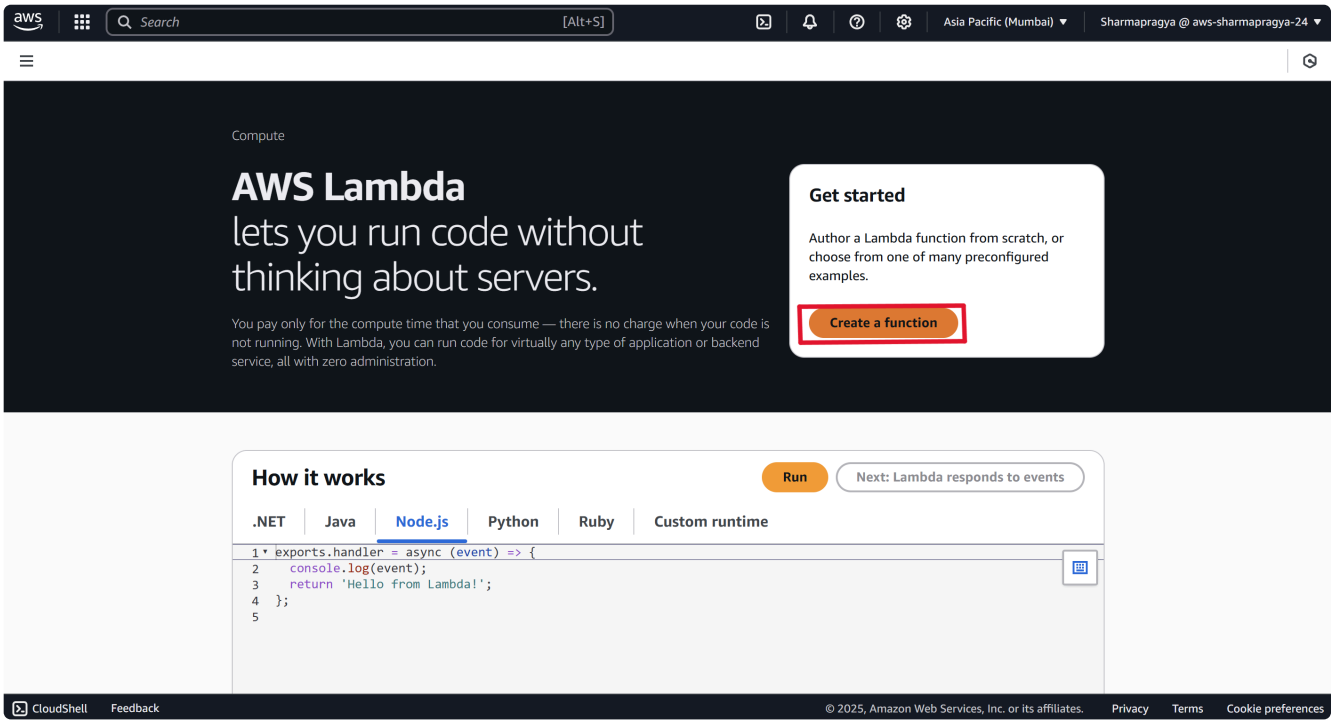
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Sharmapragya @ aws-sharmapragya-24
Compute
AWS Lambda
lets you run code without thinking about servers.
You pay only for the compute time that you consume — there is no charge when your code is not running. With Lambda, you can run code for virtually any type of application or backend service, all with zero administration.
Get started
Author a Lambda function from scratch, or choose from one of many preconfigured examples.
Create a function
How it works
Run
Next: Lambda responds to events
.NET
Java
Node.js
Python
Ruby
Custom runtime
exports.handler = async (event) => {
console.log(event);
return 'Hello from Lambda!';
};
CloudShell
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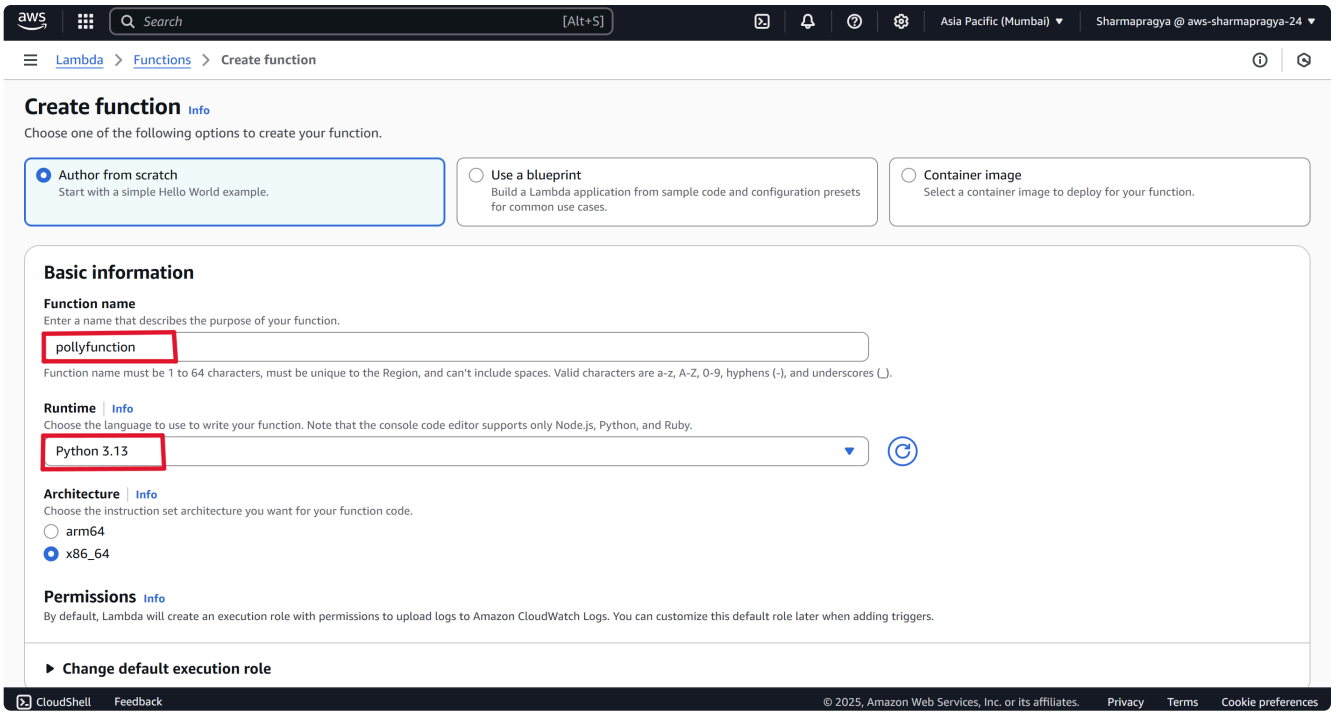
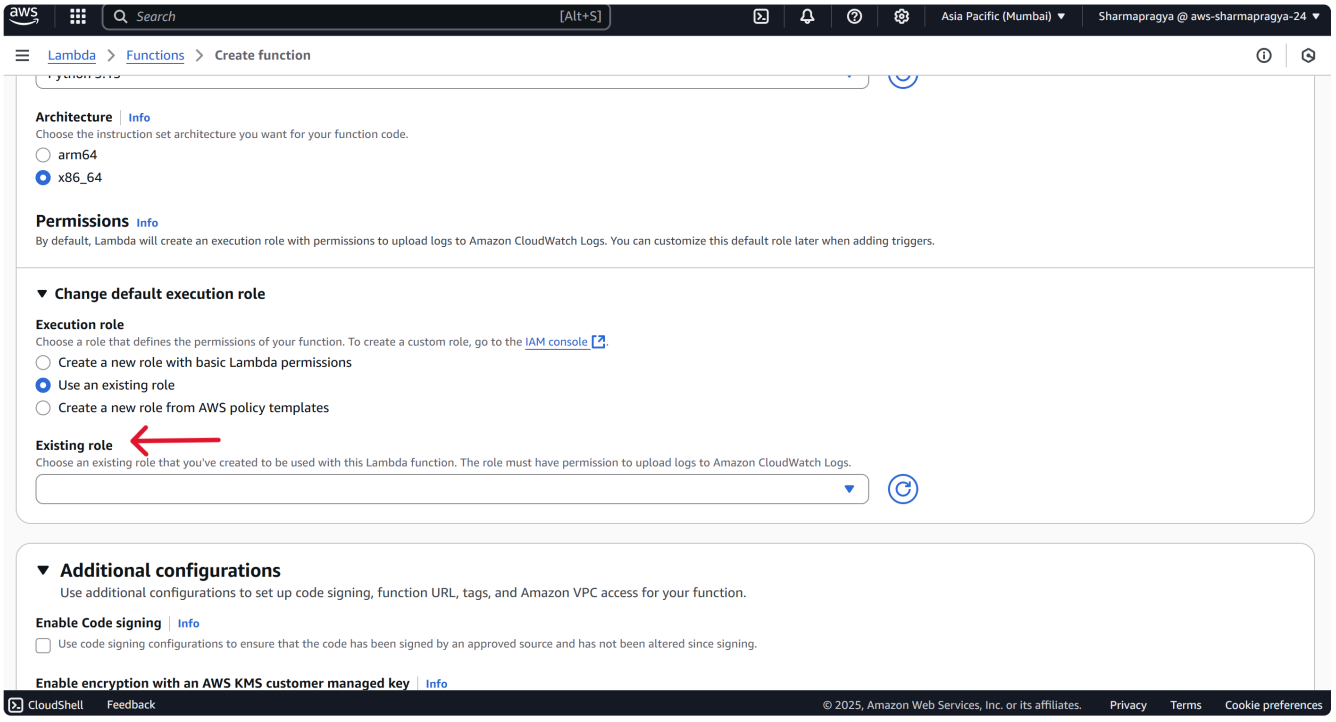
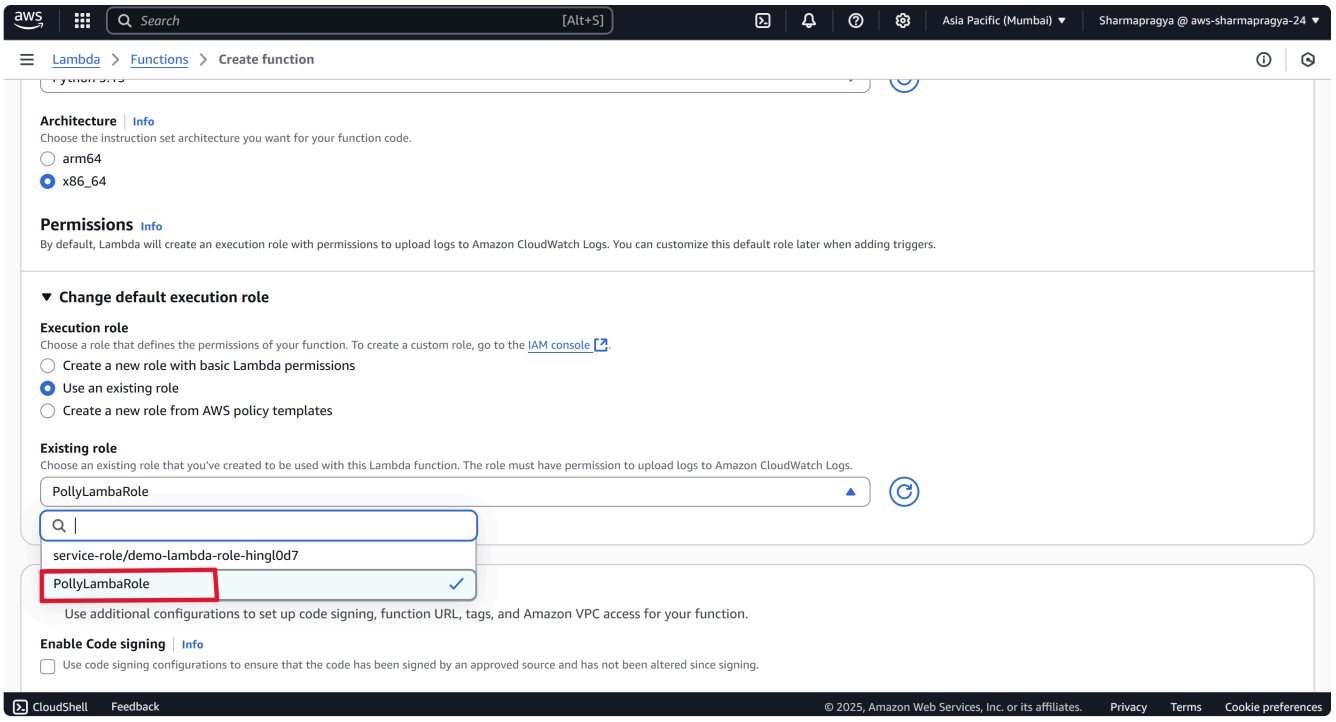
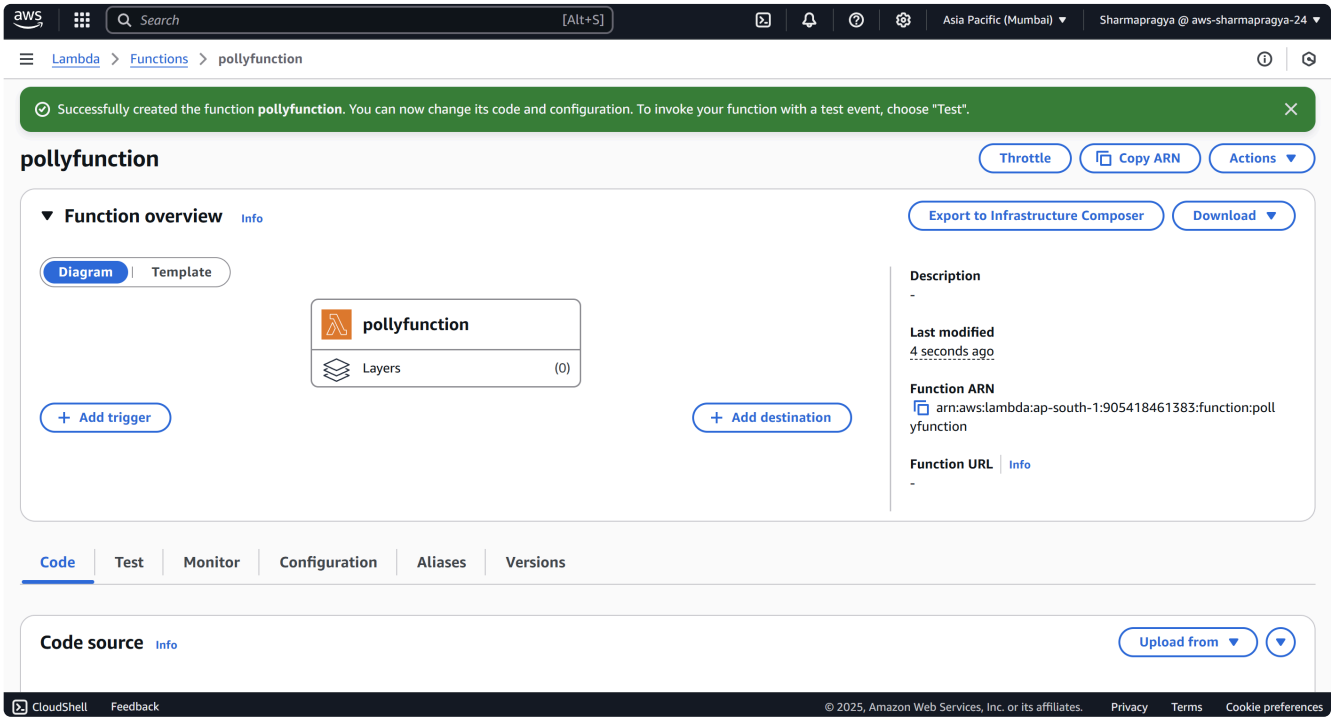


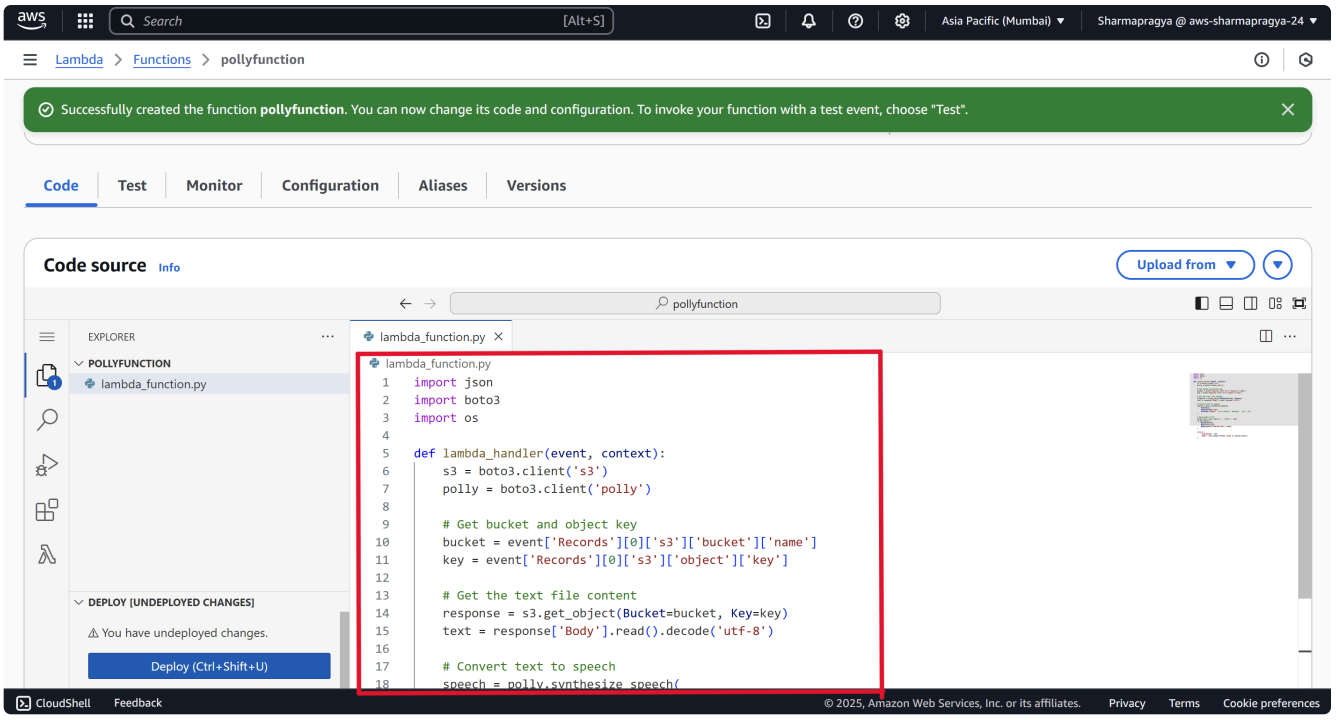
6. add the previously created IAM role to lambda function



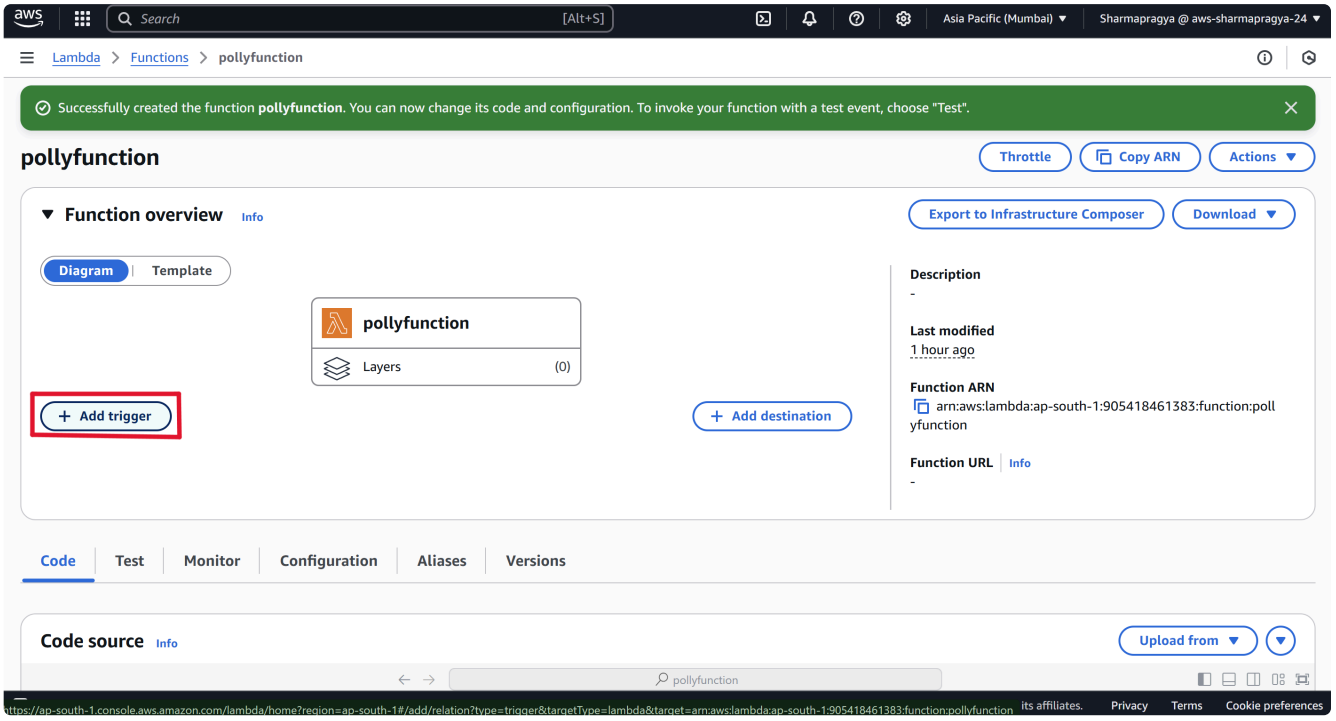


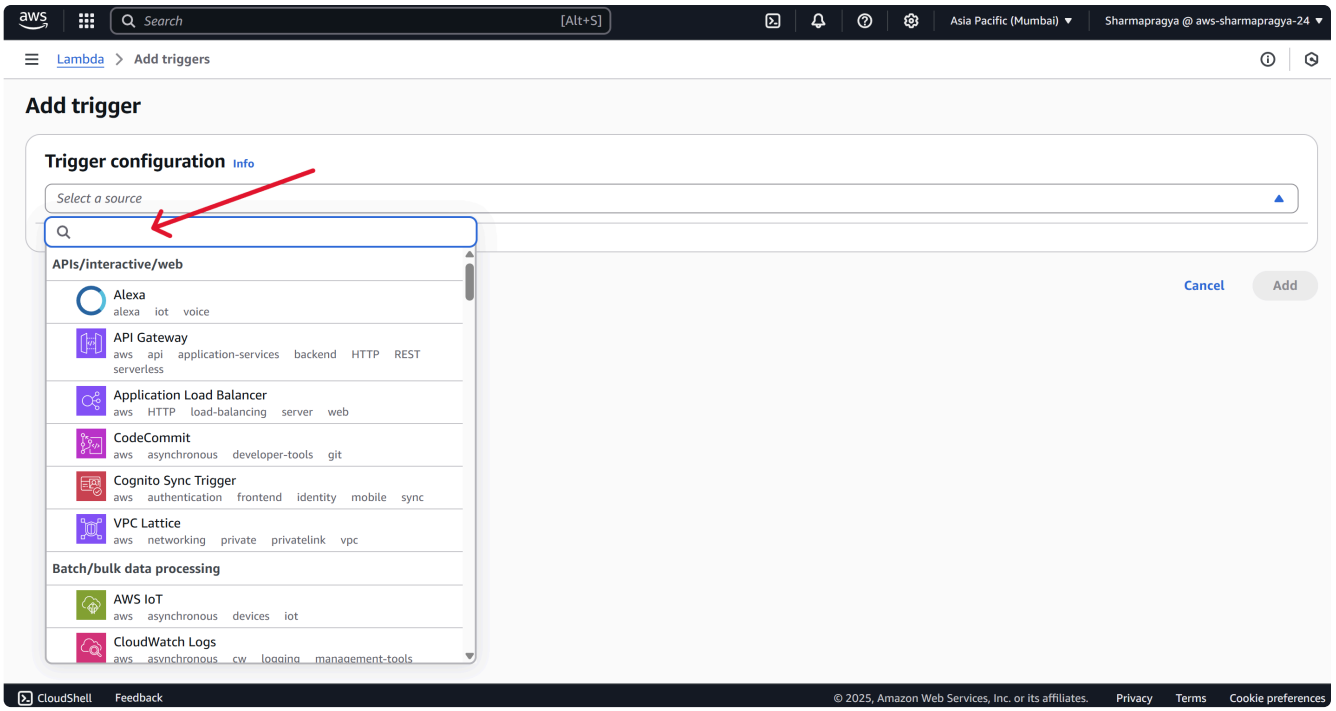


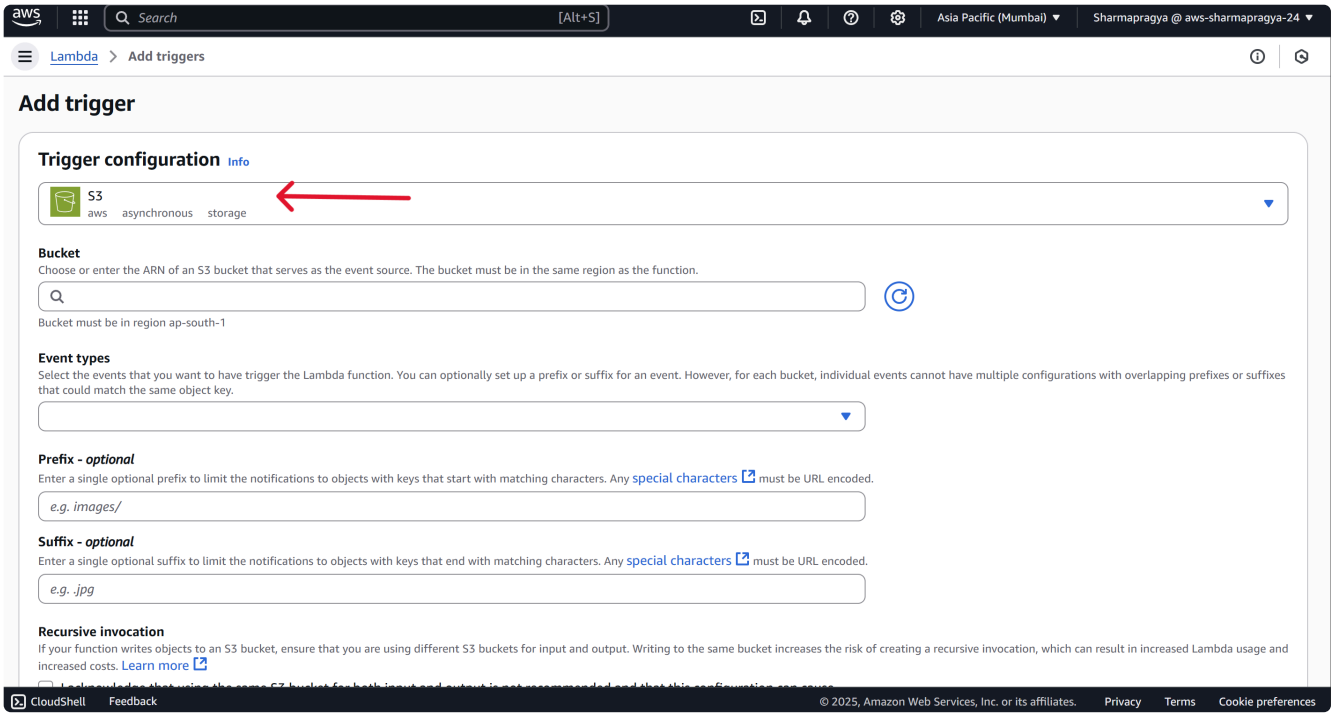
7. Paste the python code in lambda function



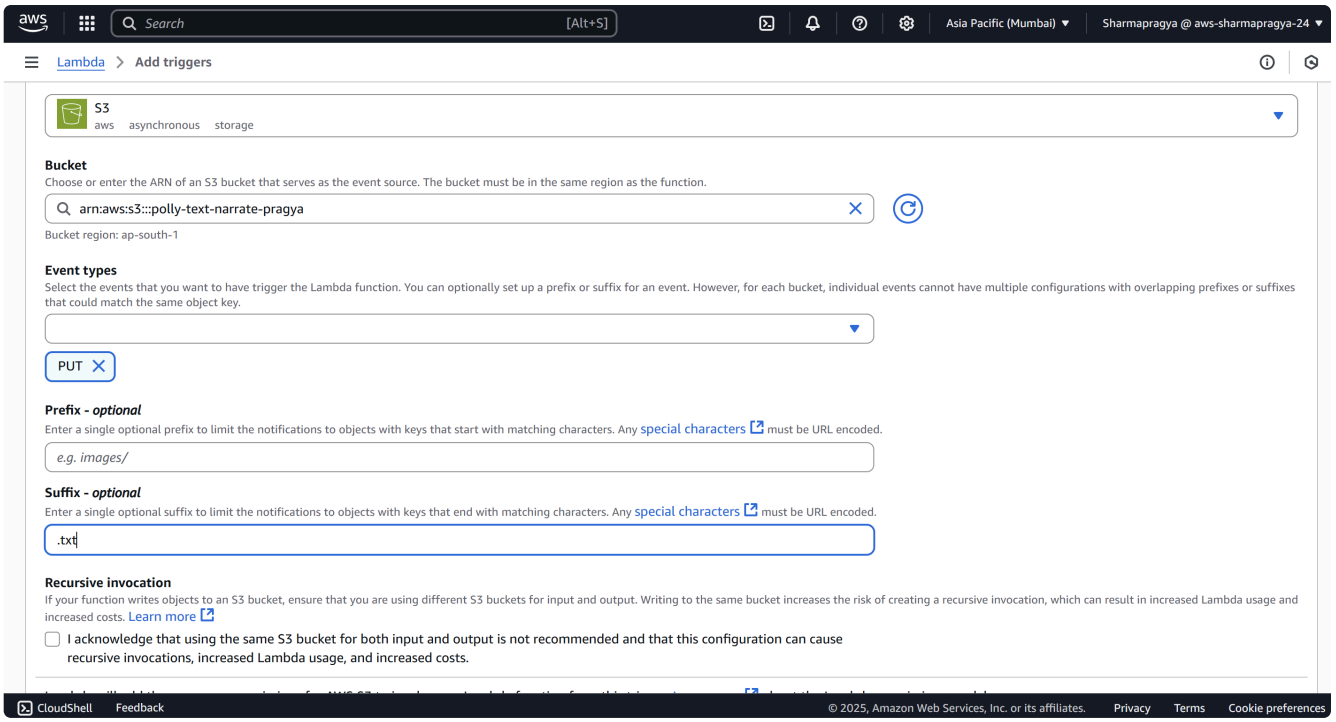
8. Add trigger to lambda

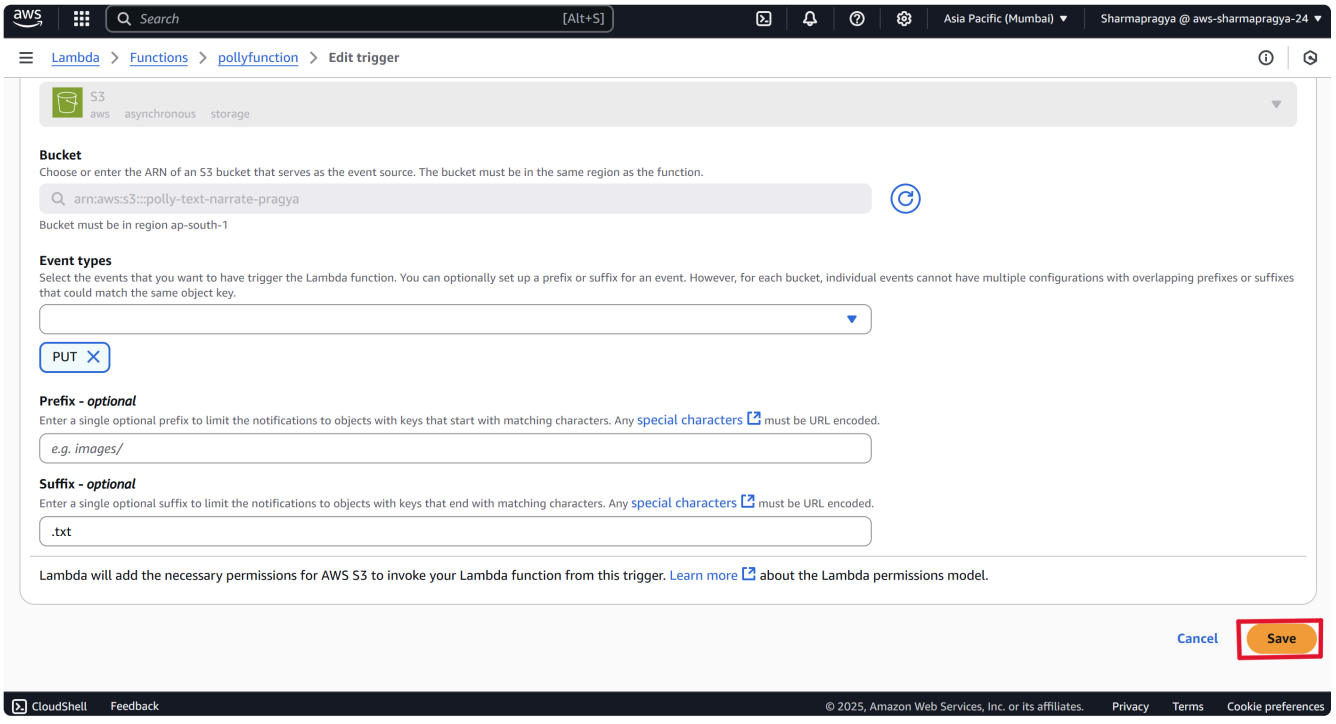




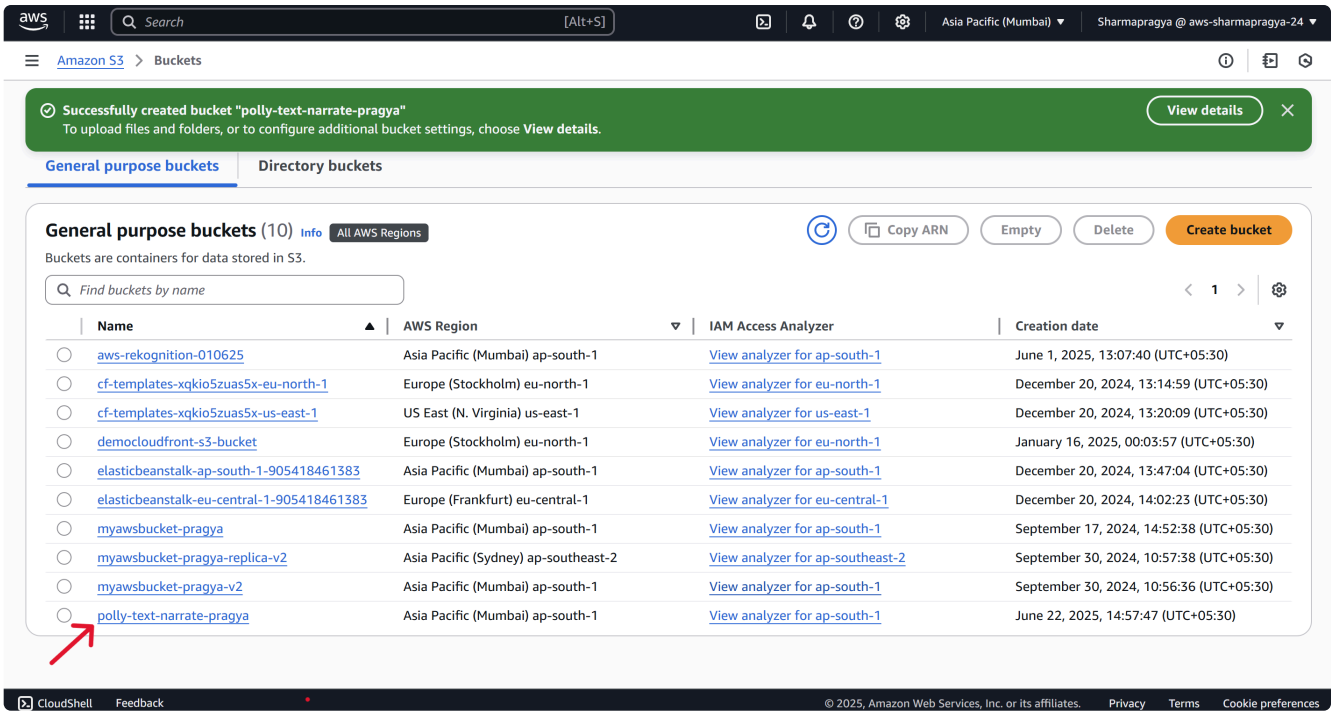


9. Add the bucket name or ARN of the bucket
make event types as PUT
.txt as suffix





10. Now upload your .txt sample file in S3 bucket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Amazon S3 > Buckets
Successfully created bucket "polly-text-narrate-pragya"
To upload files and folders, or to configure additional bucket settings, choose View details.
View details
General purpose buckets
Directory buckets
General purpose buckets (10) Info All AWS Regions
Buckets are containers for data stored in S3.
Copy ARN
Empty
Delete
Create bucket
Find buckets by name
Name
AWS Region
IAM Access Analyzer
Creation date
aws-rekognition-010625 Asia Pacific (Mumbai) ap-south-1 View analyzer for ap-south-1 June 1, 2025, 13:07:40 (UTC+05:30)
cf-templates-xqkio5zuas5x-eu-north-1 Europe (Stockholm) eu-north-1 View analyzer for eu-north-1 December 20, 2024, 13:14:59 (UTC+05:30)
cf-templates-xqkio5zuas5x-us-east-1 US East (N. Virginia) us-east-1 View analyzer for us-east-1 December 20, 2024, 13:20:09 (UTC+05:30)
democloudfront-s3-bucket Europe (Stockholm) eu-north-1 View analyzer for eu-north-1 January 16, 2025, 00:03:57 (UTC+05:30)
elasticbeanstalk-ap-south-1-905418461383 Asia Pacific (Mumbai) ap-south-1 View analyzer for ap-south-1 December 20, 2024, 13:47:04 (UTC+05:30)
elasticbeanstalk-eu-central-1-905418461383 Europe (Frankfurt) eu-central-1 View analyzer for eu-central-1 December 20, 2024, 14:02:23 (UTC+05:30)
myawsbucket-pragya Asia Pacific (Mumbai) ap-south-1 View analyzer for ap-south-1 September 17, 2024, 14:52:38 (UTC+05:30)
myawsbucket-pragya-replica-v2 Asia Pacific (Sydney) ap-southeast-2 View analyzer for ap-southeast-2 September 30, 2024, 10:57:38 (UTC+05:30)
myawsbucket-pragya-v2 Asia Pacific (Mumbai) ap-south-1 View analyzer for ap-south-1 September 30, 2024, 10:56:36 (UTC+05:30)
polly-text-narrate-pragya Asia Pacific (Mumbai) ap-south-1 View analyzer for ap-south-1 June 22, 2025, 14:57:47 (UTC+05:30)
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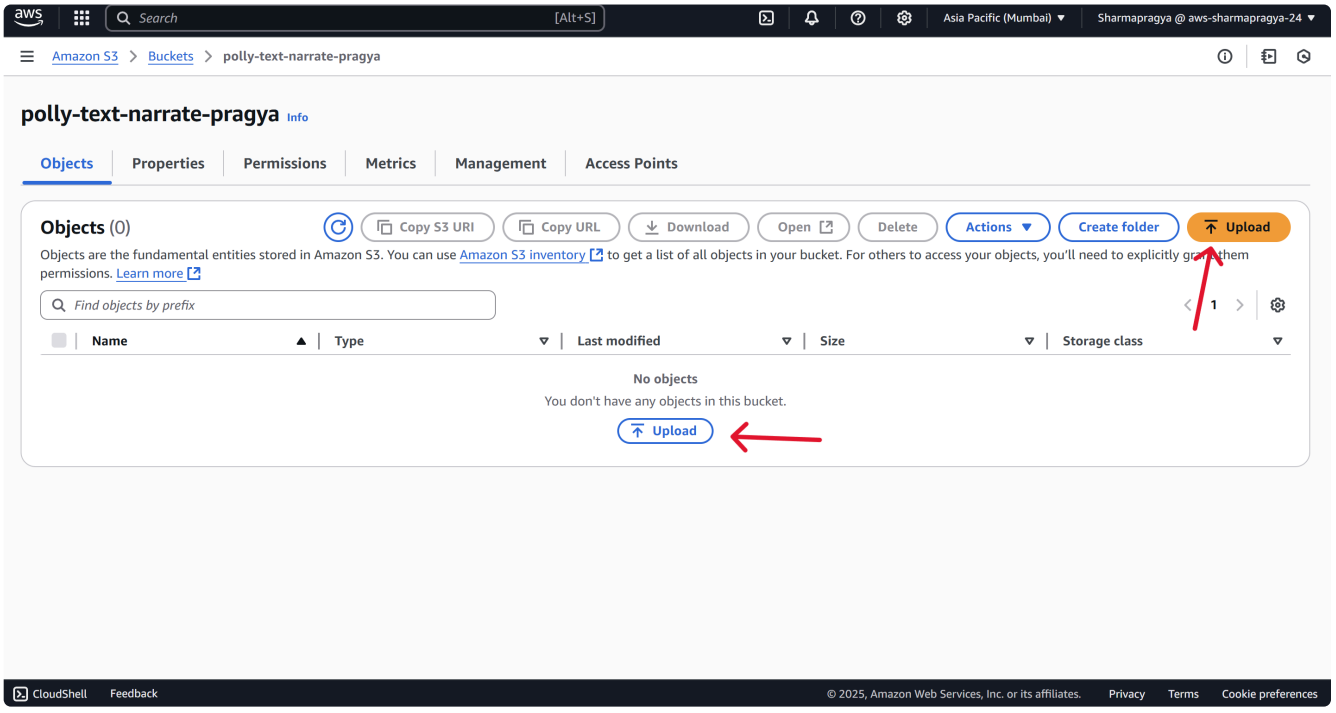
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Amazon S3 > Buckets > polly-text-narrate-pragya
polly-text-narrate-pragya Info
Objects
Properties
Permissions
Metrics
Management
Access Points
Objects (0)
Copy S3 URI
Copy URL
Download
Open
Delete
Actions
Create folder
Upload
Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more
Find objects by prefix
Name
Type
Last modified
Size
Storage class
No objects
You don't have any objects in this bucket.
Upload
CloudShell
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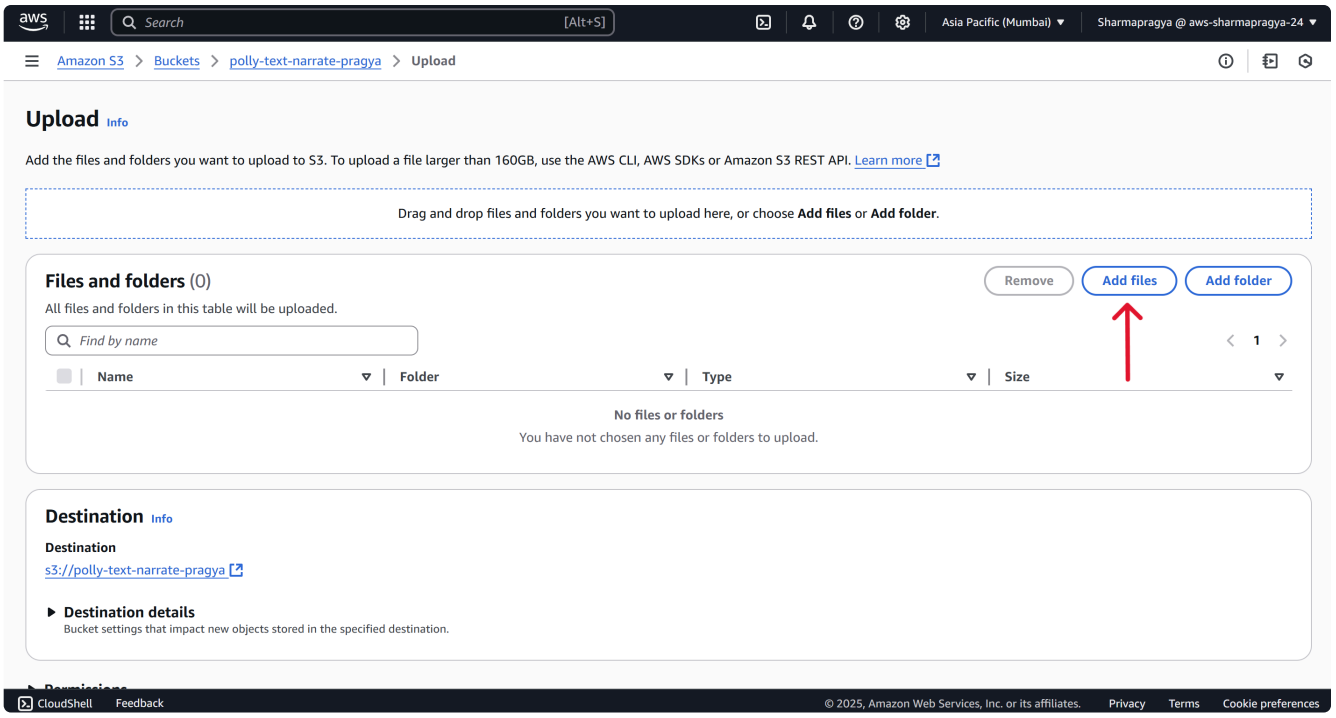

Adding a file in this S3 bucket will trigger our lambda function and soon an mp3 file of audio generated from amazon polly will appear in the same S3 bucket

Troubleshooting tips

1. add the following permission to roles, to monitor amazon lambda through cloudwatch for easier error detection
   `AWSLambdaBasicExecutionRole`