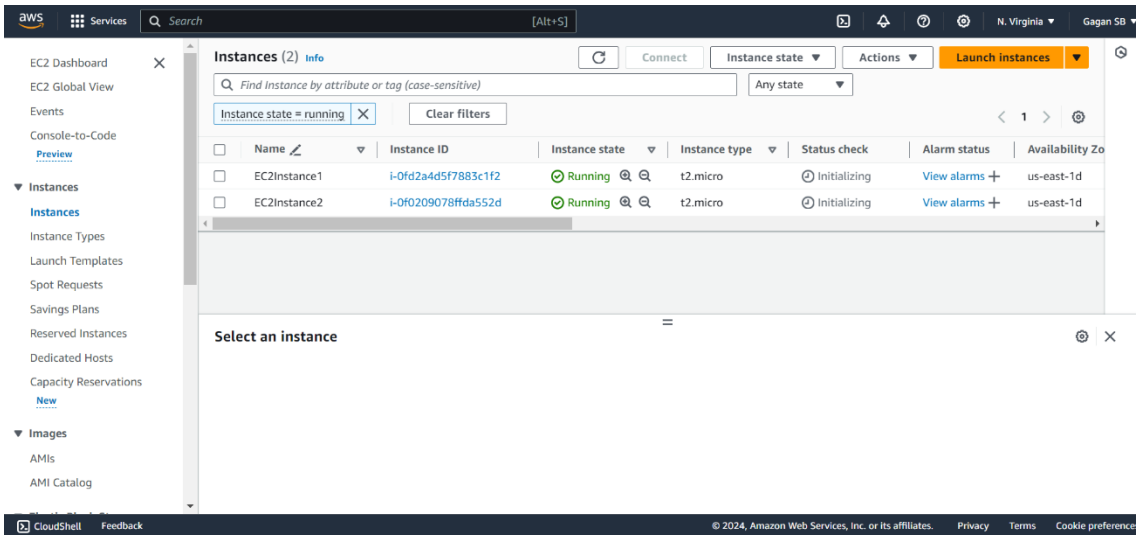
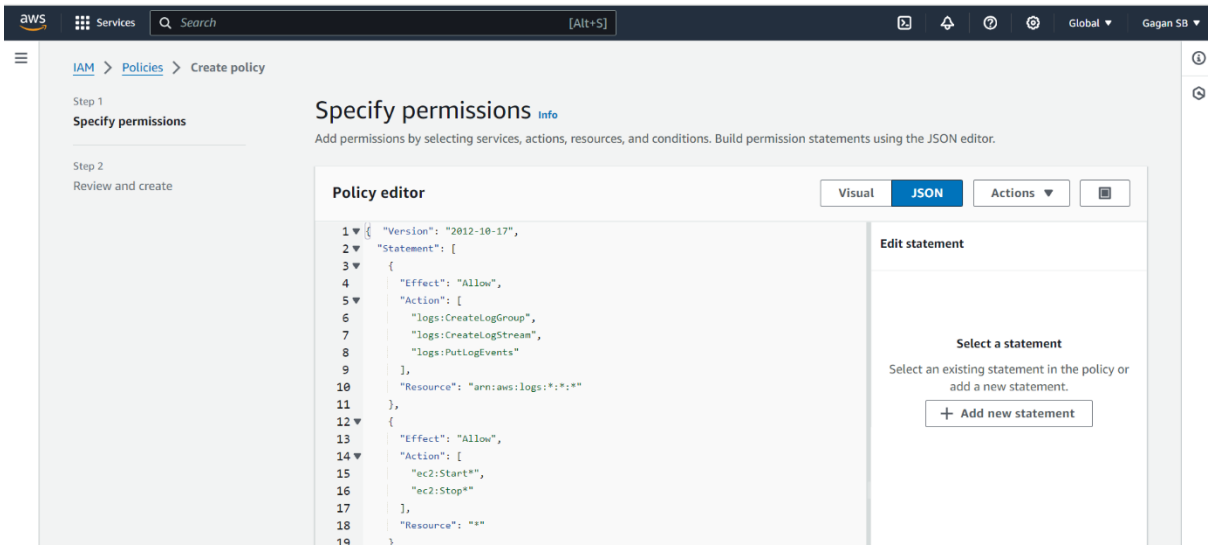
AWS Project to automatically start and stop Amazon EC2 instances using AWS Lambda.

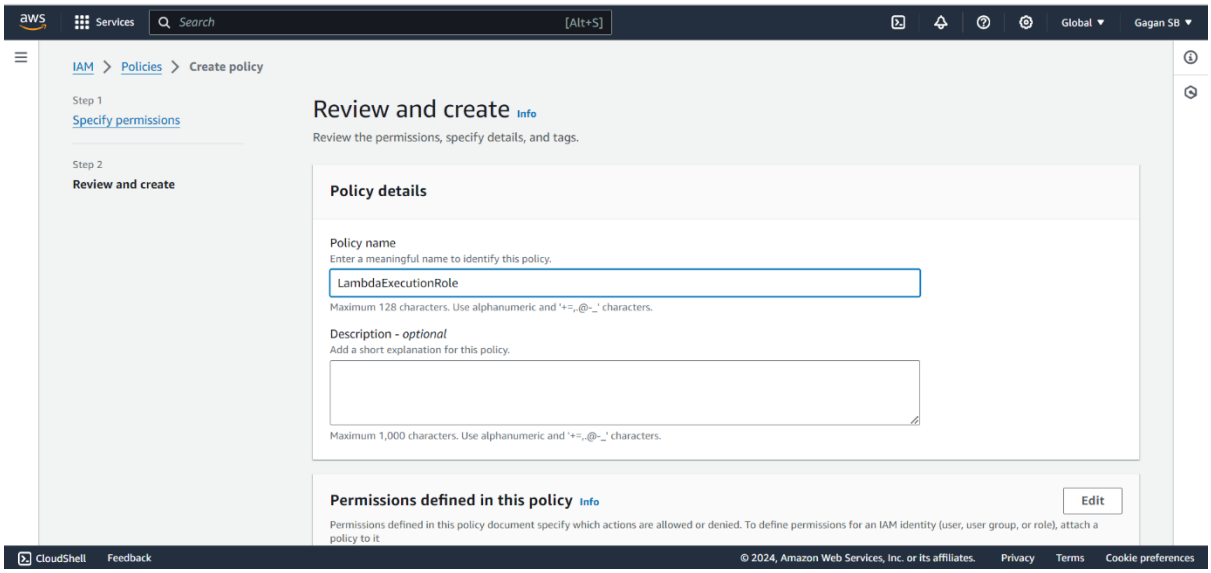
Project Description: Use AWS Lambda to automatically stop and start Amazon EC2 instances.

Step1: Launch Two EC2 Instances Manually



Step2: Create an IAM policy and IAM role for your Lambda function.




aws
Services
Search
[Alt+S]
Global
Gagan SB
IAM > Policies > Create policy
Step 1
Specify permissions
Step 2
Review and create
Review and create Info
Review the permissions, specify details, and tags.
Policy details
Policy name
Enter a meaningful name to identify this policy.
LambdaExecutionRole
Maximum 128 characters. Use alphanumeric and '+=,.@-_' characters.
Description - optional
Add a short explanation for this policy.
Maximum 1,000 characters. Use alphanumeric and '+=,.@-_' characters.
Permissions defined in this policy Info
Edit
Permissions defined in this policy document specify which actions are allowed or denied. To define permissions for an IAM identity (user, user group, or role), attach a policy to it
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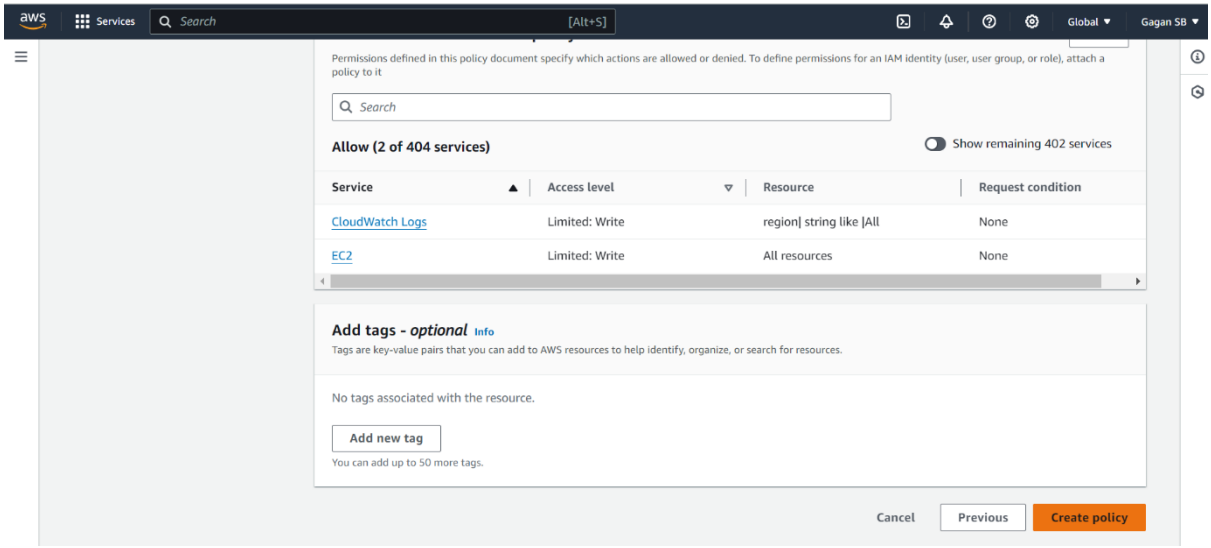
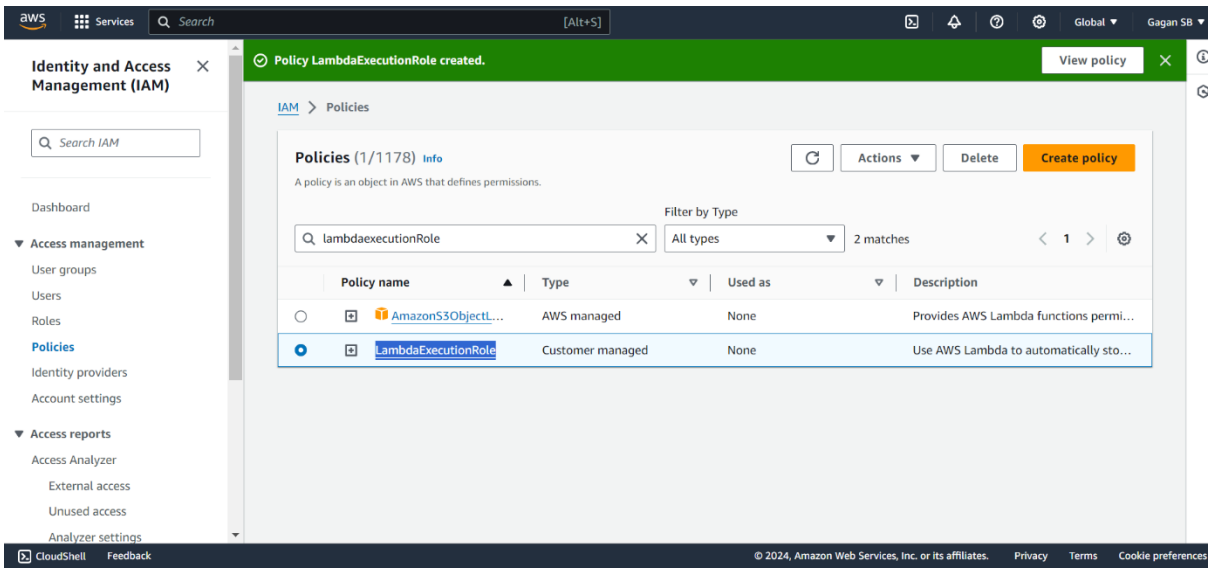

aws
Services
Search
[Alt+S]
Global
Gagan SB
Permissions defined in this policy document specify which actions are allowed or denied. To define permissions for an IAM identity (user, user group, or role), attach a policy to it
Search
Allow (2 of 404 services)
Show remaining 402 services
Service
Access level
Resource
Request condition
CloudWatch Logs
Limited: Write
region| string like |All
None
EC2
Limited: Write
All resources
None
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 policy


aws
Services
Search
[Alt+S]
Global
Gagan SB
Identity and Access Management (IAM)
Search IAM
Dashboard
Access management
User groups
Users
Roles
Policies
Identity providers
Account settings
Access reports
Access Analyzer
External access
Unused access
Analyzer settings
Policy LambdaExecutionRole created.
View policy
IAM > Policies
Policies (1/1178) Info
A policy is an object in AWS that defines permissions.
Actions
Delete
Create policy
Filter by Type
lambdaexecutionRole
All types
2 matches
1
Policy name
Type
Used as
Description
AmazonS3ObjectL...
AWS managed
None
Provides AWS Lambda functions permi...
LambdaExecutionRole
Customer managed
None
Use AWS Lambda to automatically sto...
CloudShell
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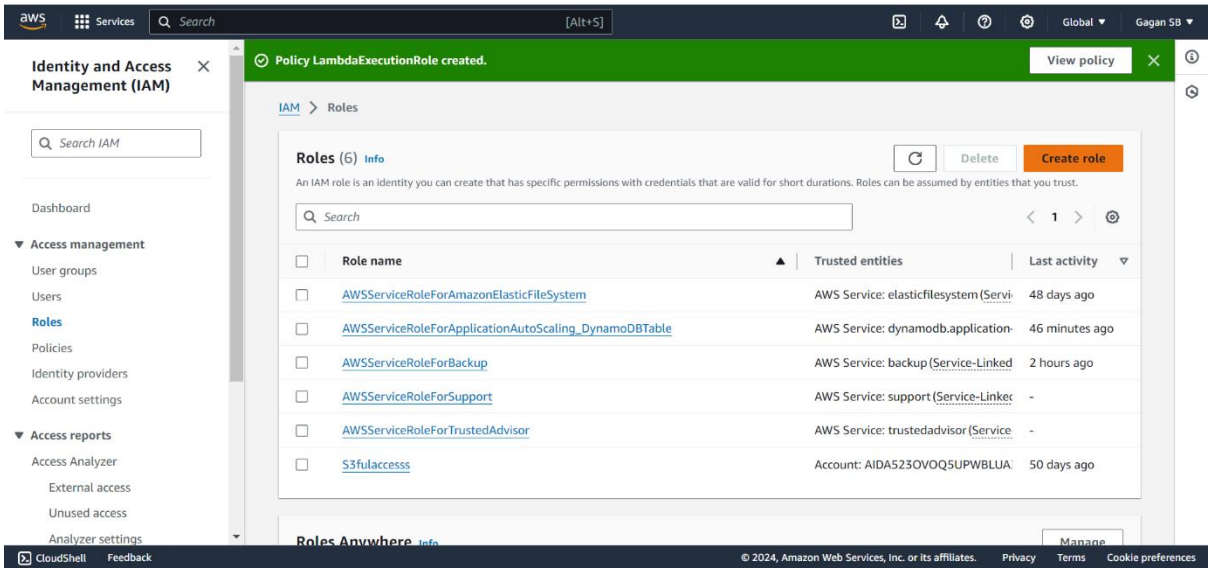
Services
Search
[Alt+S]
Global
Gagan SB
Identity and Access Management (IAM)
Policy LambdaExecutionRole created.
View policy
Search IAM
Dashboard
Access management
User groups
Users
Roles
Policies
Identity providers
Account settings
Access reports
Access Analyzer
External access
Unused access
Analyzer settings
IAM > Roles
Roles (6) 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
Role name
Trusted entities
Last activity
AWSServiceRoleForAmazonElasticFileSystem
AWS Service: elasticfilesystem (Servi
48 days ago
AWSServiceRoleForApplicationAutoScaling_DynamoDBTable
AWS Service: dynamodb.application
46 minutes ago
AWSServiceRoleForBackup
AWS Service: backup (Service-Linked
2 hours ago
AWSServiceRoleForSupport
AWS Service: support (Service-Linkec
-
AWSServiceRoleForTrustedAdvisor
AWS Service: trustedadvisor (Service
-
S3fulaccesss
Account: AIDA523OVOQ5UPWBLUA
50 days ago
Roles Anywhere Info
Manage
CloudShell
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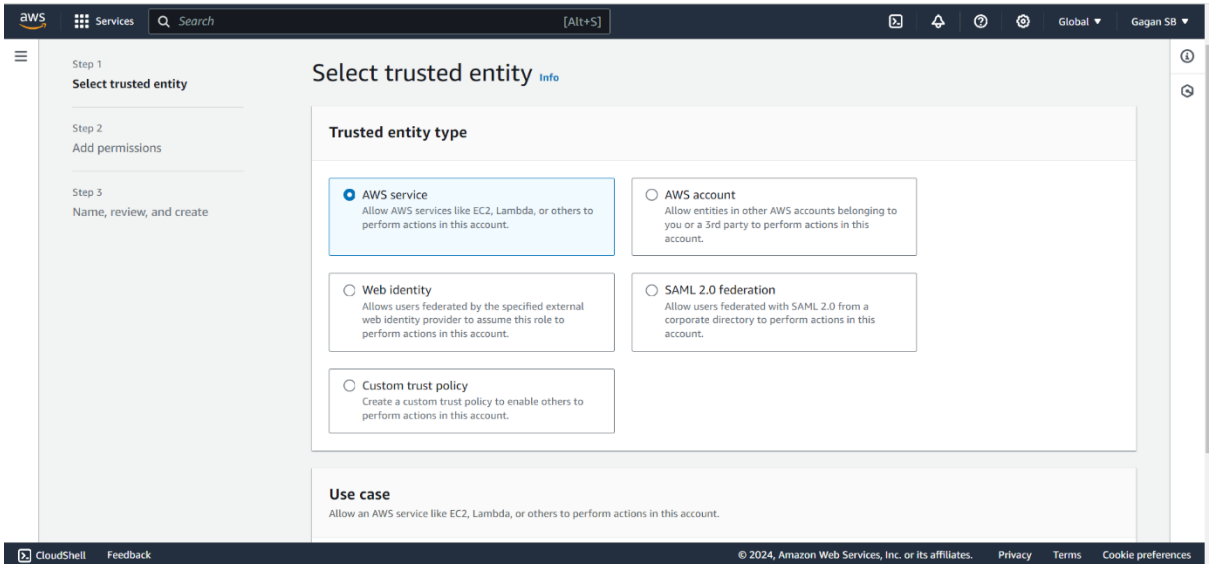
Services
Search
[Alt+S]
Global
Gagan SB
Step 1
Select trusted entity
Step 2
Add permissions
Step 3
Name, review, and create
Select trusted entity Info
Trusted entity type
AWS service
Allow AWS services like EC2, Lambda, or others to perform actions in this account.
AWS account
Allow entities in other 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.
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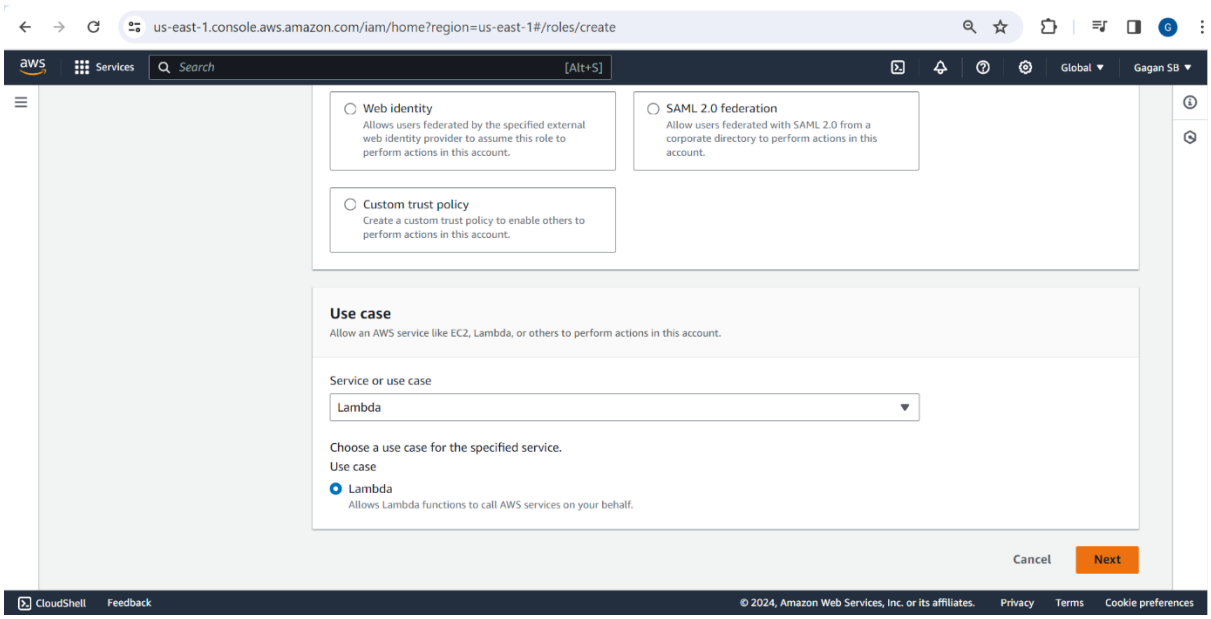
us-east-1.console.aws.amazon.com/iam/home?region=us-east-1#/roles/create
Services
Search
[Alt+S]
Global
Gagan SB
Web identity
Allows users federated by the specified external web identity provider to assume this role to perform actions in this account.
SAML 2.0 federation
Allow users federated with SAML 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
Lambda
Choose a use case for the specified service.
Use case
Lambda
Allows Lambda functions to call AWS services on your behalf.
Cancel
Next
CloudShell
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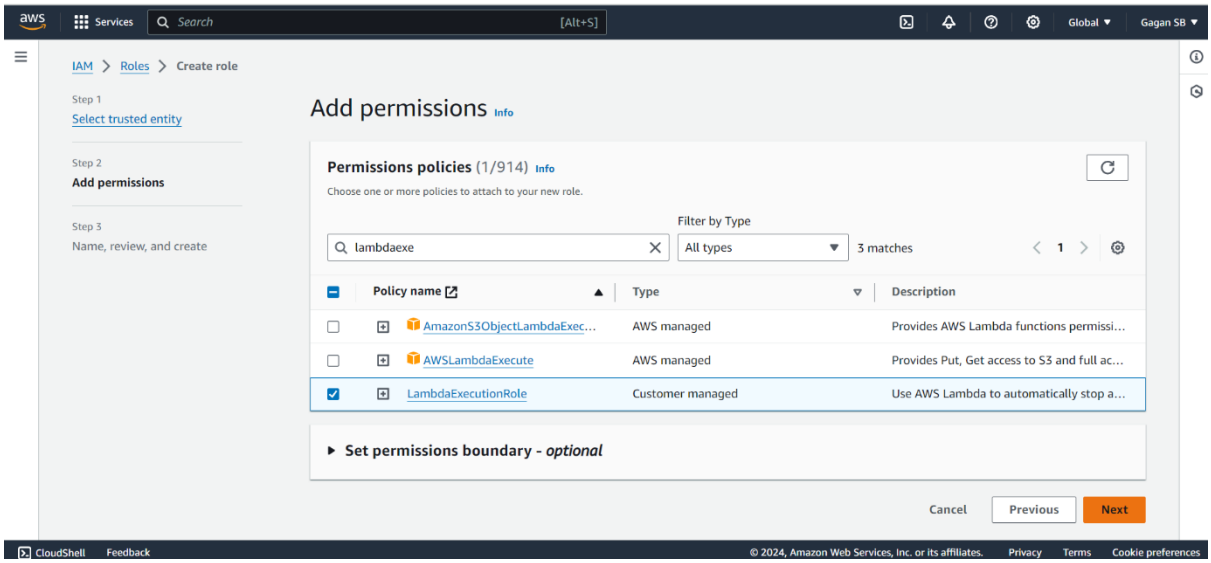
aws
Services
Search
[Alt+S]
Global
Gagan SB
IAM > Roles > Create role
Step 1
Select trusted entity
Step 2
Add permissions
Step 3
Name, review, and create
Add permissions Info
Permissions policies (1/914) Info
Choose one or more policies to attach to your new role.
Filter by Type
lambdaexe
All types
3 matches
1
Policy name
Type
Description
AmazonS3ObjectLambdaExec...
AWS managed
Provides AWS Lambda functions permissi...
AWSLambdaExecute
AWS managed
Provides Put, Get access to S3 and full ac...
LambdaExecutionRole
Customer managed
Use AWS Lambda to automatically stop a...
Set permissions boundary - optional
Cancel
Previous
Next
CloudShell
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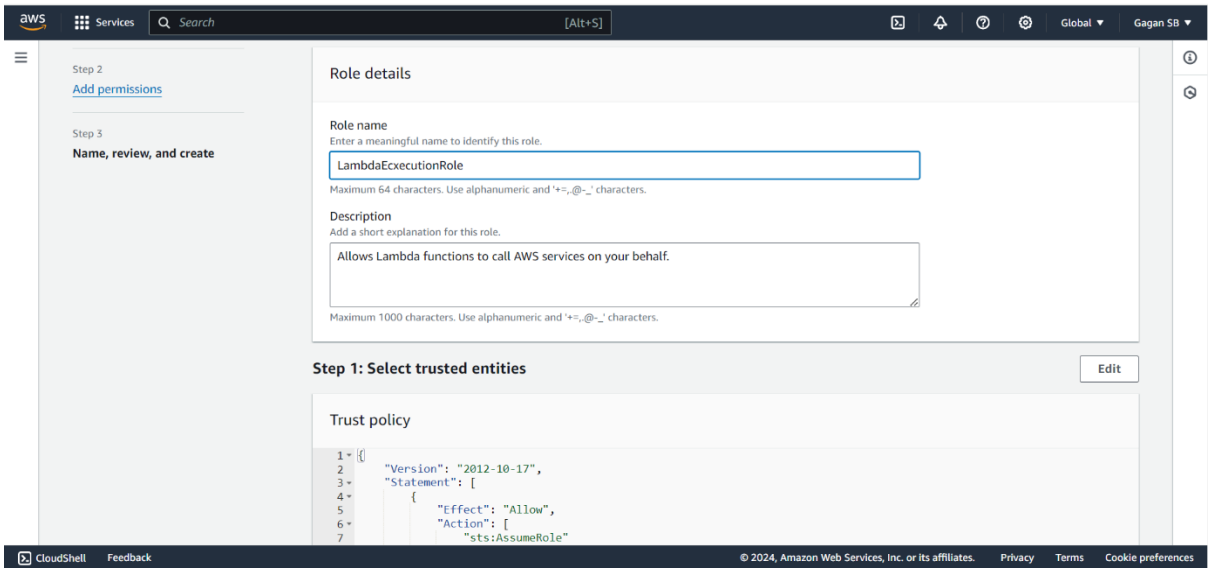
aws
Services
Search
[Alt+S]
Global
Gagan SB
Step 2
Add permissions
Step 3
Name, review, and create
Role details
Role name
Enter a meaningful name to identify this role.
LambdaEcxecutionRole
Maximum 64 characters. Use alphanumeric and '+=,.@-_' characters.
Description
Add a short explanation for this role.
Allows Lambda functions to call AWS services on your behalf.
Maximum 1000 characters. Use alphanumeric and '+=,.@-_' characters.
Step 1: Select trusted entities
Edit
Trust policy
{
"Version": "2012-10-17",
"Statement": [
{
"Effect": "Allow",
"Action": [
"sts:AssumeRole"
CloudShell
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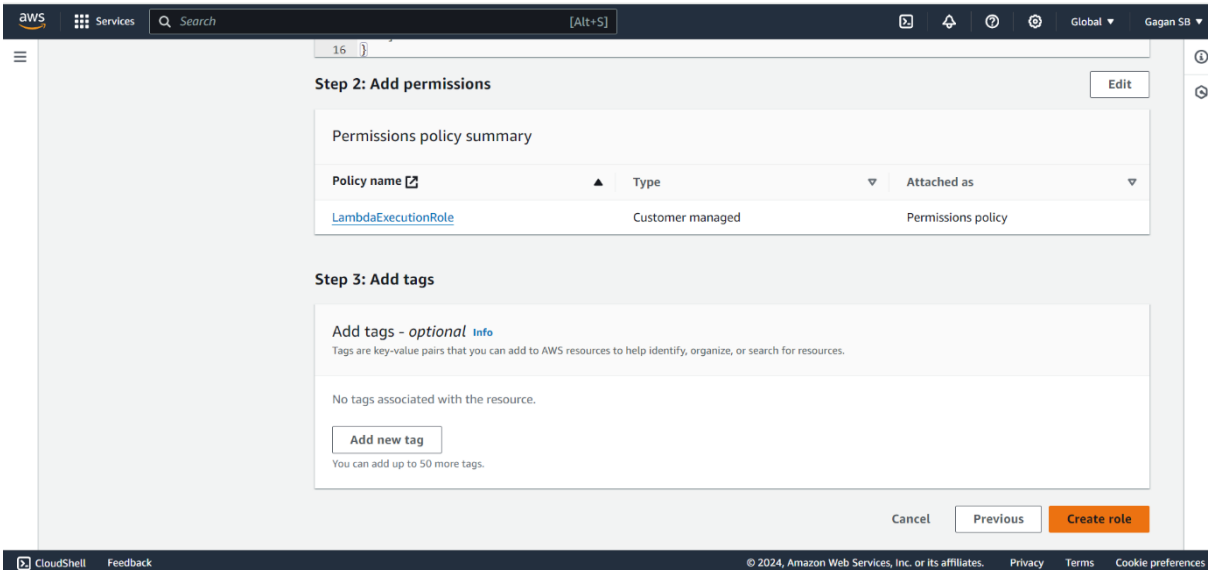
aws
Services
Search
[Alt+S]
Global
Gagan SB
16 }
Step 2: Add permissions
Edit
Permissions policy summary
Policy name
Type
Attached as
LambdaExecutionRole
Customer managed
Permissions policy
Step 3: Add tags
Add tags - optional Info
Tags are key-value pairs that you can add to AWS resources to help identify, 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
Feedback
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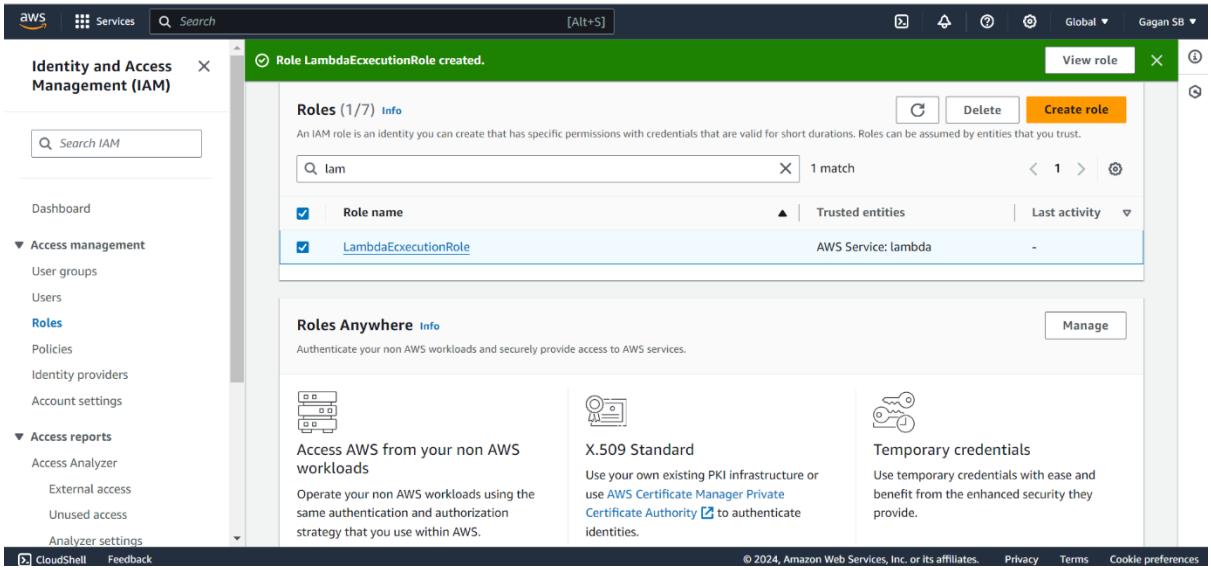
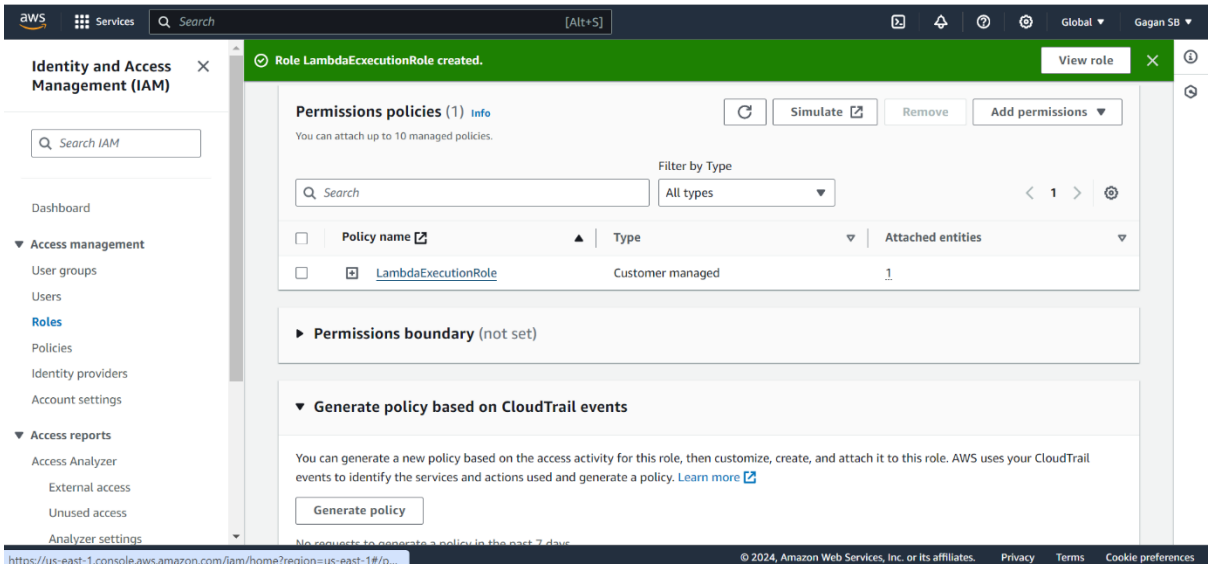


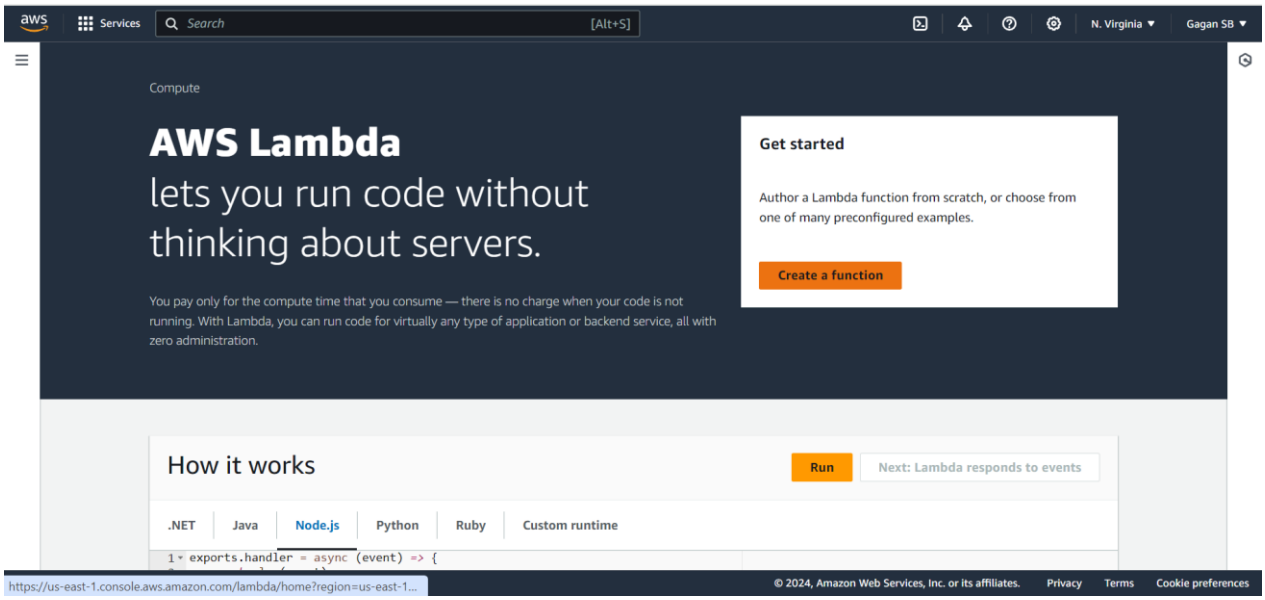


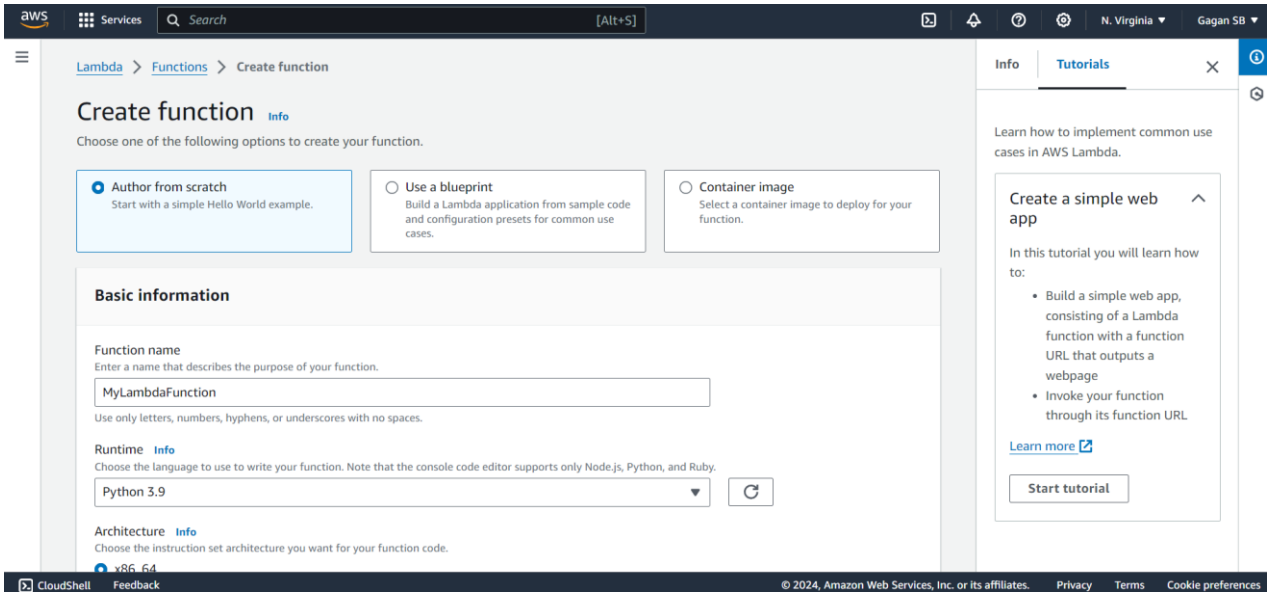
JSON Policy Document Code:

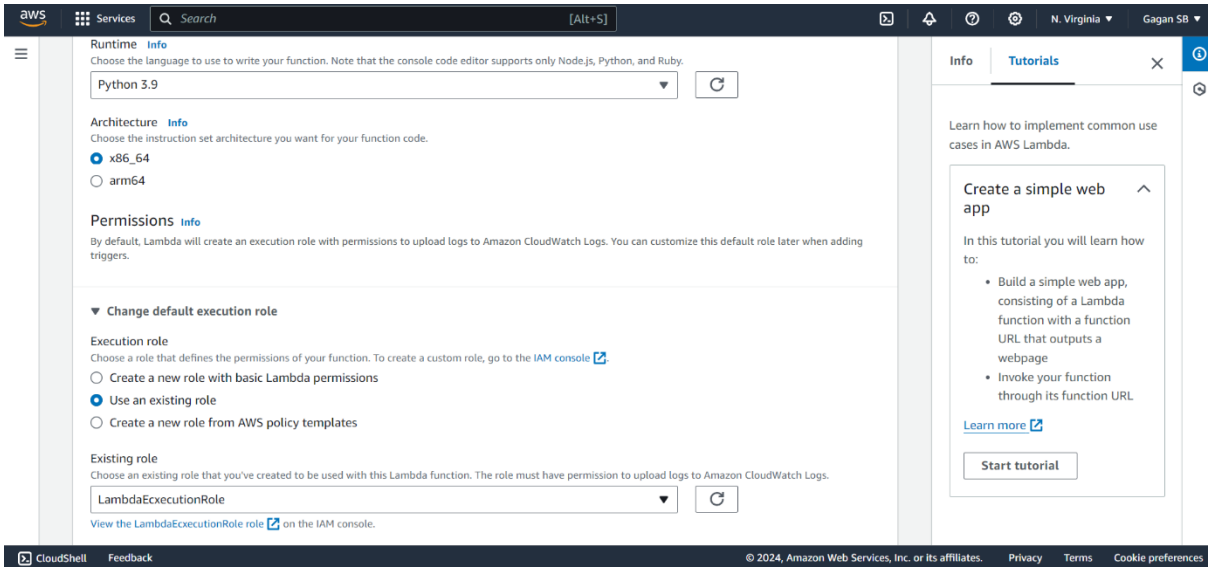
```
{  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "logs:CreateLogGroup",
        "logs:CreateLogStream",
        "logs:PutLogEvents"
      ],
      "Resource": "arn:aws:logs:*:*:*"
    },
    {
      "Effect": "Allow",
      "Action": [
```

```
        "ec2:Start*",
        "ec2:Stop*"
      ],
      "Resource": "*"
    }
  ]
}
```

Step3: Create Lambda functions that stop and start your instances






Services
Search
[Alt+S]
N. Virginia
Gagan SB
Runtime Info
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.
Python 3.9
Architecture Info
Choose the instruction set architecture you want for your function code.
x86_64
arm64
Permissions Info
By default, Lambda will create an execution role with permissions to upload logs to Amazon CloudWatch Logs. You can customize this default role later when adding triggers.
Change default execution role
Execution role
Choose a role that defines the permissions of your function. To create a custom role, go to the IAM console.
Create a new role with basic Lambda permissions
Use an existing role
Create a new role from AWS policy templates
Existing role
Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.
LambdaExcecutionRole
View the LambdaExcecutionRole role on the IAM console.
Info
Tutorials
Learn how to implement common use cases in AWS Lambda.
Create a simple web app
In this tutorial you will learn how to:
Build a simple web app, consisting of a Lambda function with a function URL that outputs a webpage
Invoke your function through its function URL
Learn more
Start tutorial
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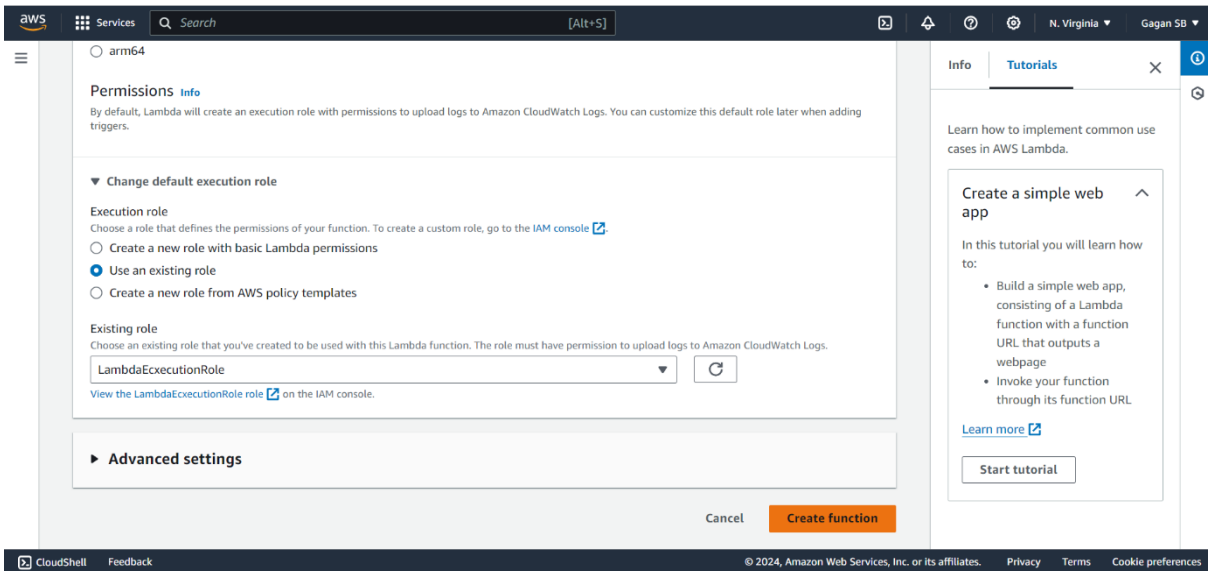
Services
Search
[Alt+S]
N. Virginia
Gagan SB
arm64
Permissions Info
By default, Lambda will create an execution role with permissions to upload logs to Amazon CloudWatch Logs. You can customize this default role later when adding triggers.
Change default execution role
Execution role
Choose a role that defines the permissions of your function. To create a custom role, go to the IAM console.
Create a new role with basic Lambda permissions
Use an existing role
Create a new role from AWS policy templates
Existing role
Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.
LambdaExcecutionRole
View the LambdaExcecutionRole role on the IAM console.
Advanced settings
Cancel
Create function
Info
Tutorials
Learn how to implement common use cases in AWS Lambda.
Create a simple web app
In this tutorial you will learn how to:
Build a simple web app, consisting of a Lambda function with a function URL that outputs a webpage
Invoke your function through its function URL
Learn more
Start tutorial
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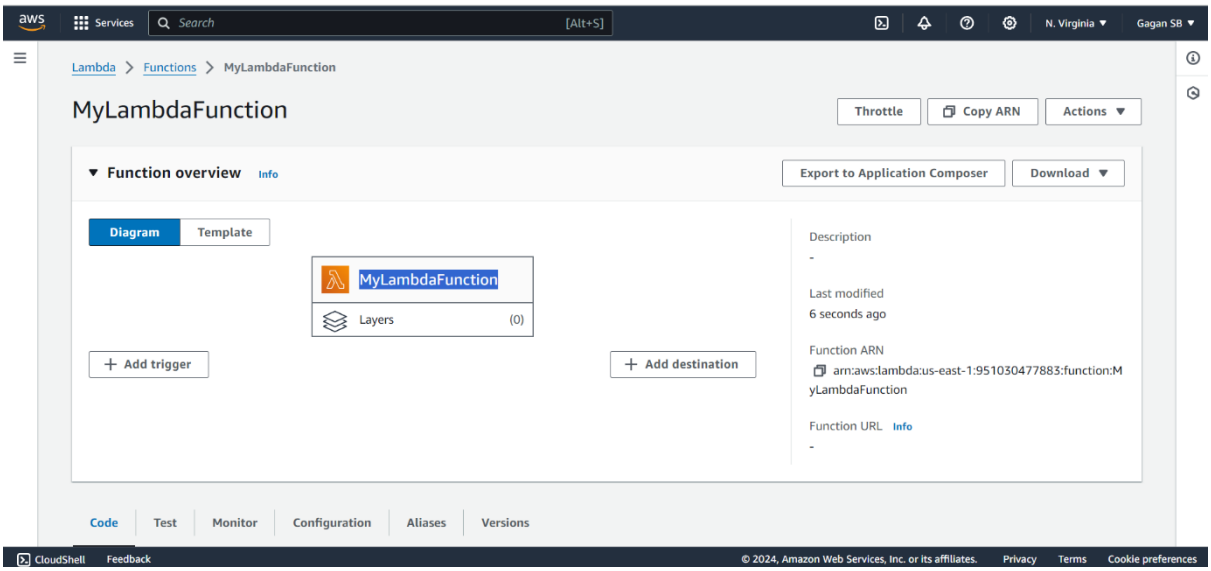
Services
Search
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N. Virginia
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Lambda
Functions
MyLambdaFunction
MyLambdaFunction
Throttle
Copy ARN
Actions
Function overview Info
Export to Application Composer
Download
Diagram
Template
MyLambdaFunction
Layers
(0)
Add trigger
Add destination
Description
-
Last modified
6 seconds ago
Function ARN
arn:aws:lambda:us-east-1:951030477883:function:MyLambdaFunction
Function URL Info
-
Code
Test
Monitor
Configuration
Aliases
Versions
CloudShell
Feedback
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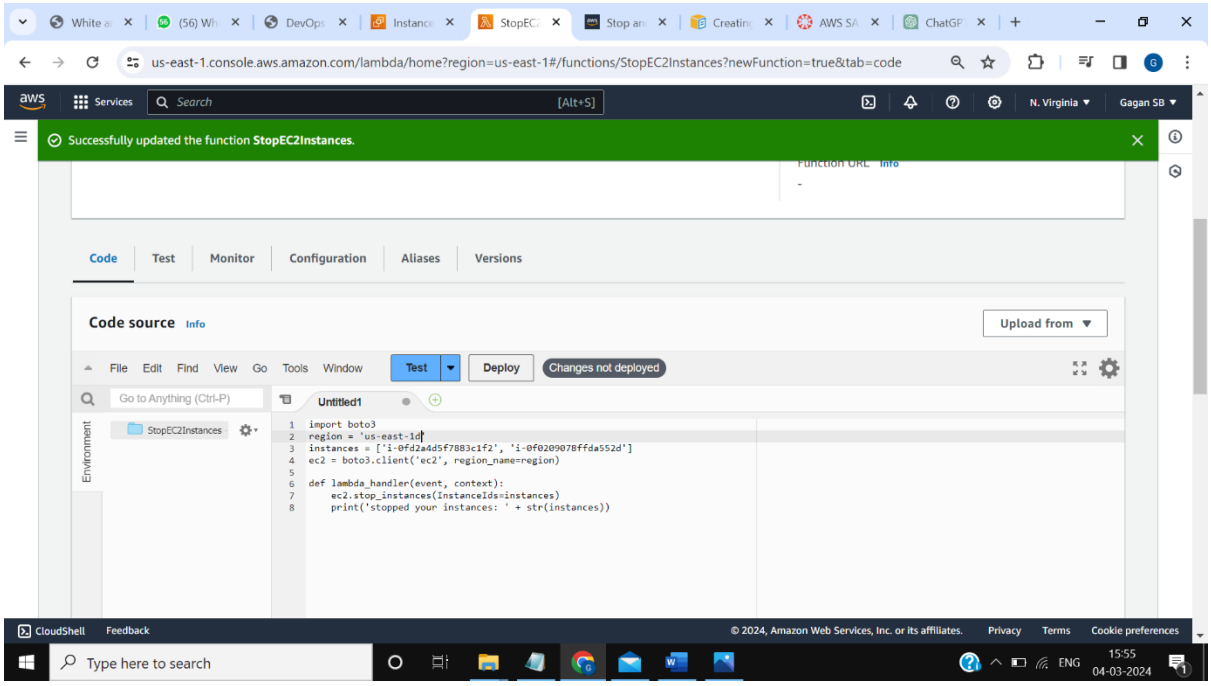
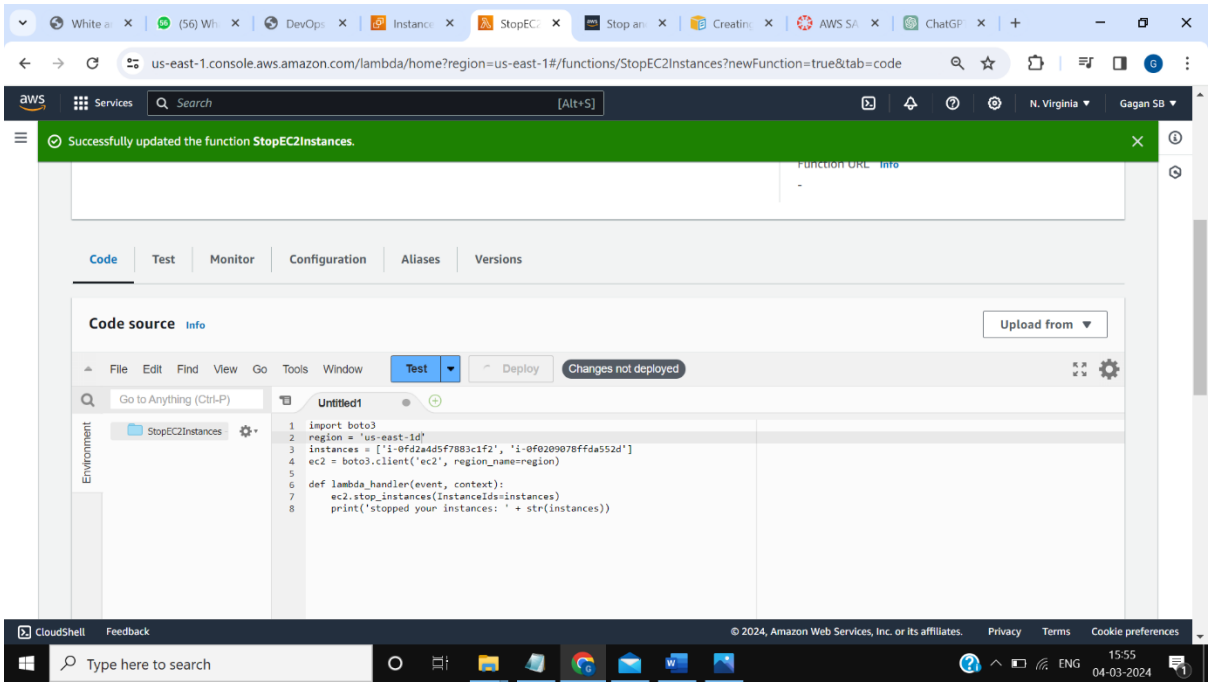
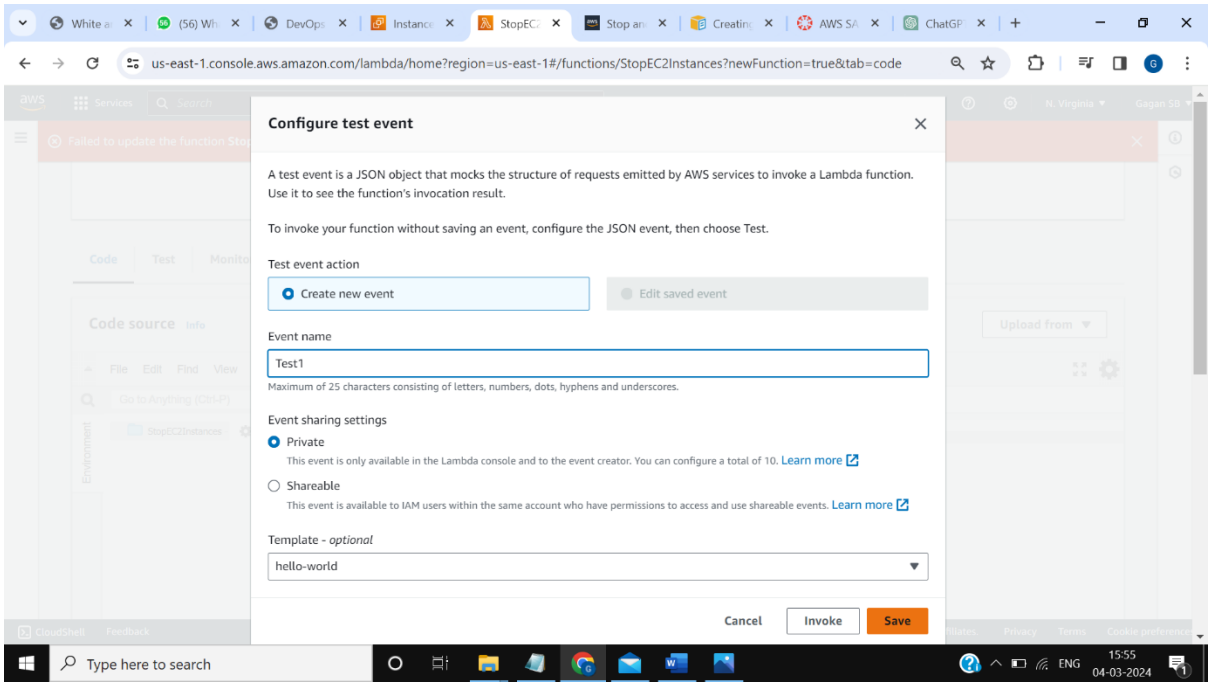
This code stops the instances

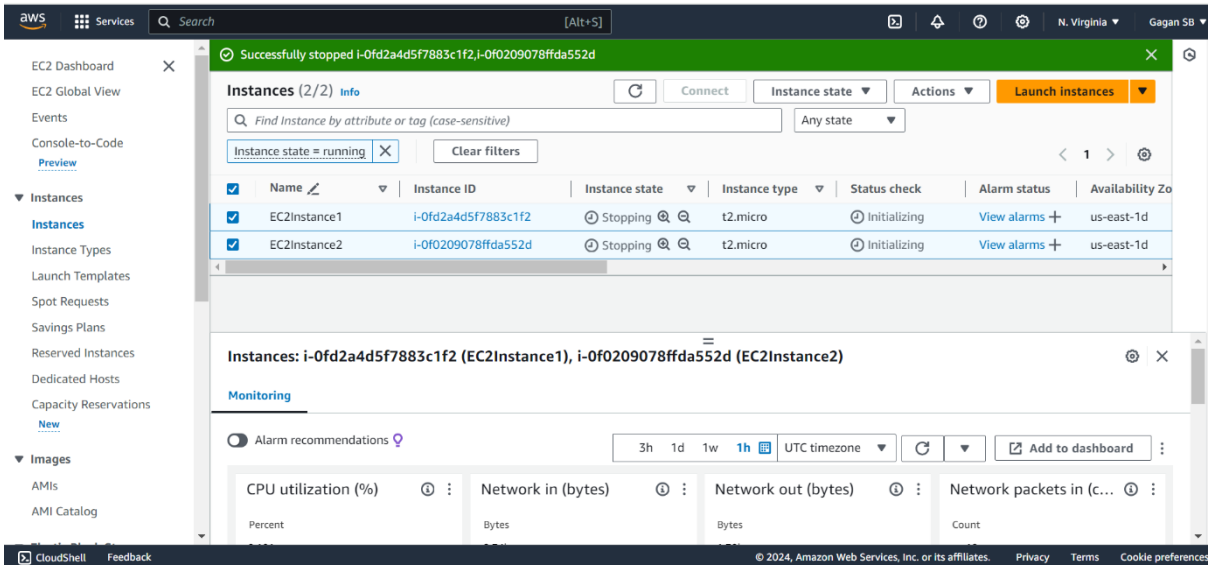
```
import boto3
region = 'us-west-1'
instances = ['i-12345cb6de4f78g9h', 'i-08ce9b2d7eccf6d26']
ec2 = boto3.client('ec2', region_name=region)

def lambda_handler(event, context):
    ec2.stop_instances(InstanceIds=instances)
    print('stopped your instances: ' + str(instances))
```





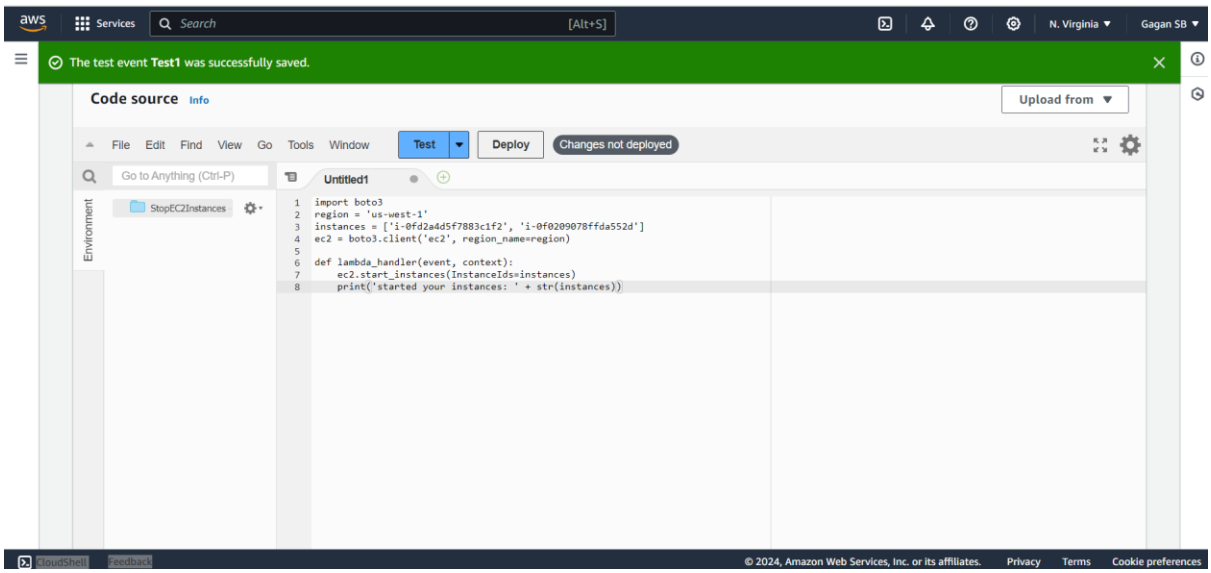




This code starts the instances

```
import boto3
region = 'us-west-1'
instances = ['i-12345cb6de4f78g9h', 'i-08ce9b2d7eccf6d26']
ec2 = boto3.client('ec2', region_name=region)

def lambda_handler(event, context):
    ec2.start_instances(InstanceIds=instances)
    print('started your instances: ' + str(instances))
```


aws
Services
Search
[Alt+S]
N. Virginia
Gagan SB
The test event Test1 was successfully saved.
Code source Info
Upload from
File Edit Find View Go Tools Window
Test
Deploy
Changes not deployed
Go to Anything (Ctrl-P)
Untitled1
Environment
StopEC2Instances
import boto3
region = 'us-west-1'
instances = ['i-0fd2a4d5f7883c1f2', 'i-0f0209078ffda552d']
ec2 = boto3.client('ec2', region_name=region)
def lambda_handler(event, context):
ec2.start_instances(InstanceIds=instances)
print('started your instances: ' + str(instances))
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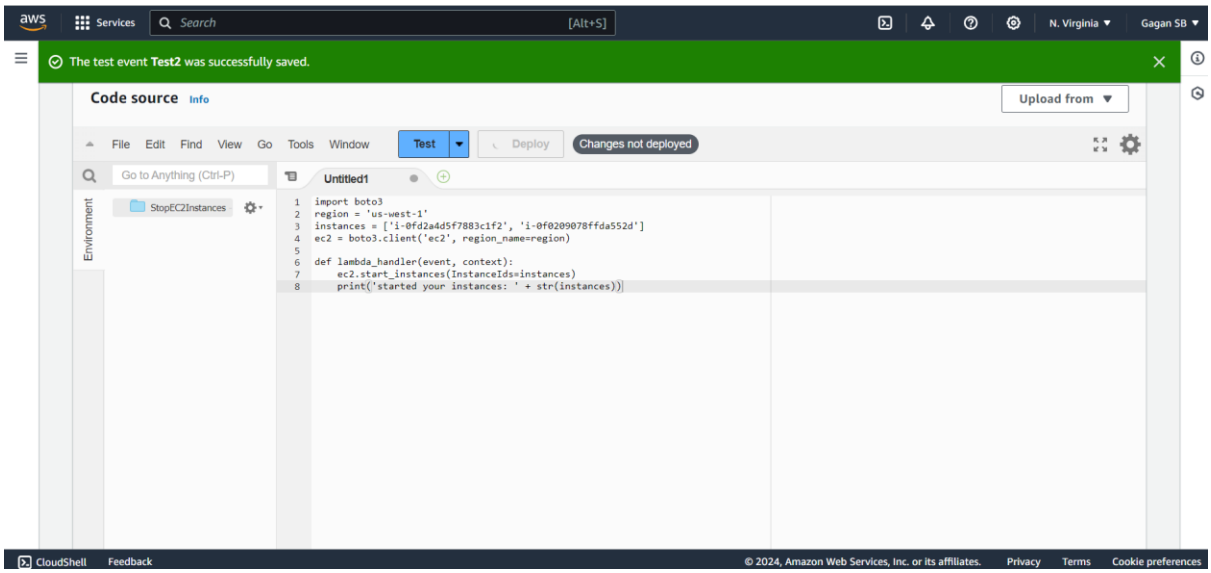
aws
Services
Search
[Alt+S]
N. Virginia
Gagan SB
The test event Test2 was successfully saved.
Code source Info
Upload from
File Edit Find View Go Tools Window
Test
Deploy
Changes not deployed
Go to Anything (Ctrl-P)
Untitled1
Environment
StopEC2Instances
import boto3
region = 'us-west-1'
instances = ['i-0fd2a4d5f7883c1f2', 'i-0f0209078ffda552d']
ec2 = boto3.client('ec2', region_name=region)
def lambda_handler(event, context):
ec2.start_instances(InstanceIds=instances)
print('started your instances: ' + str(instances))
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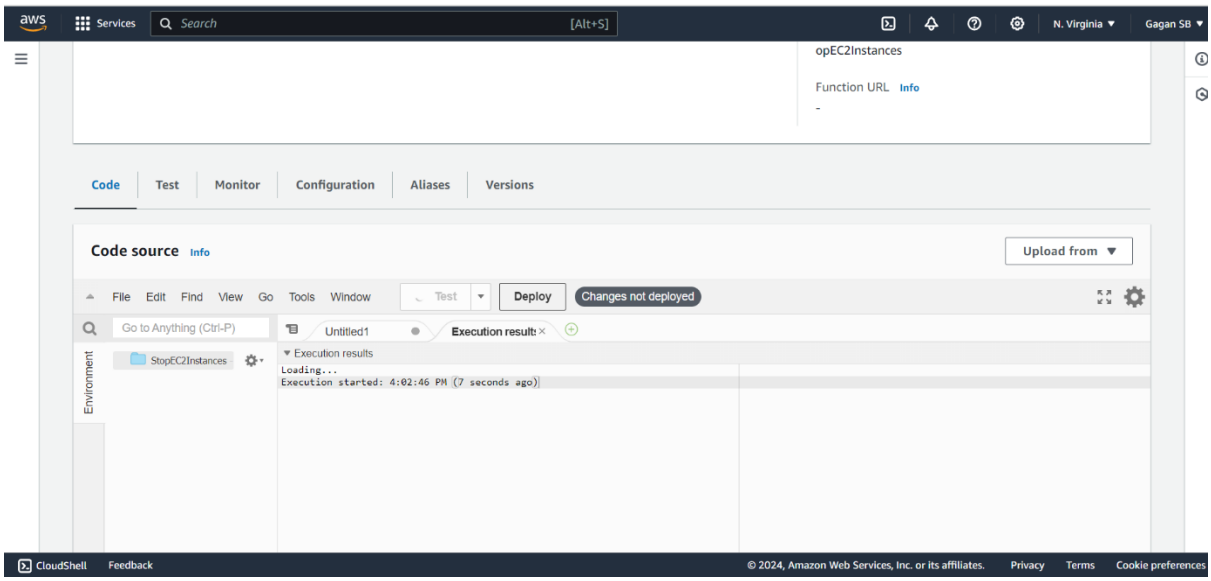
aws
Services
Search
[Alt+S]
N. Virginia
Gagan SB
opEC2Instances
Function URL Info
-
Code
Test
Monitor
Configuration
Aliases
Versions
Code source Info
Upload from
File Edit Find View Go Tools Window
Test
Deploy
Changes not deployed
Go to Anything (Ctrl-P)
Untitled1
Execution result:
Environment
StopEC2Instances
Execution results
Loading...
Execution started: 4:02:46 PM (7 seconds ago)
CloudShell
Feedback
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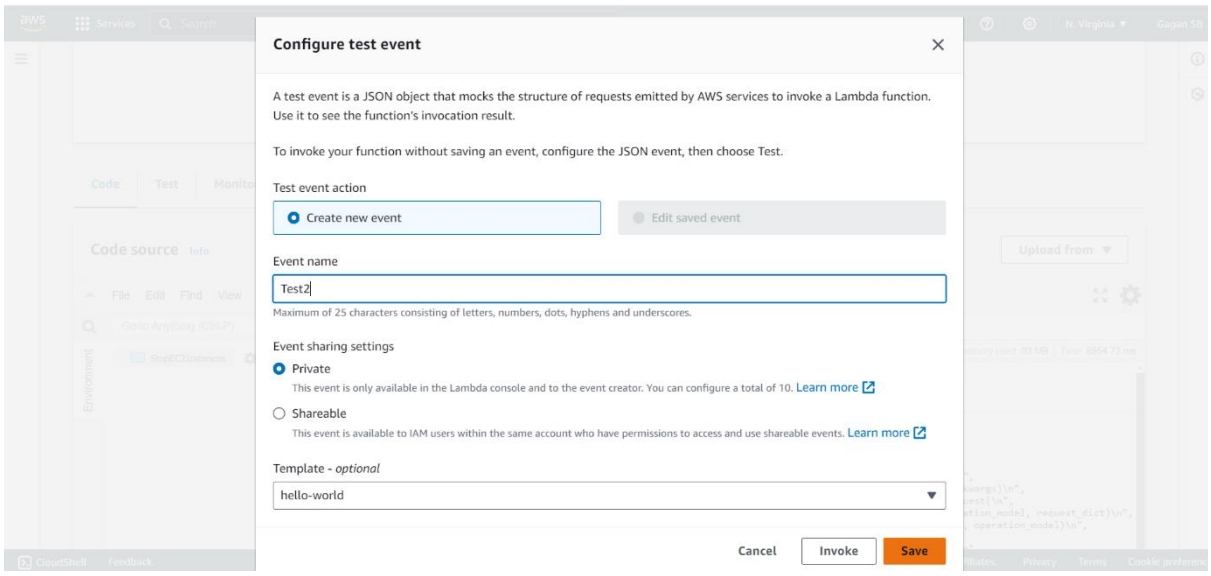
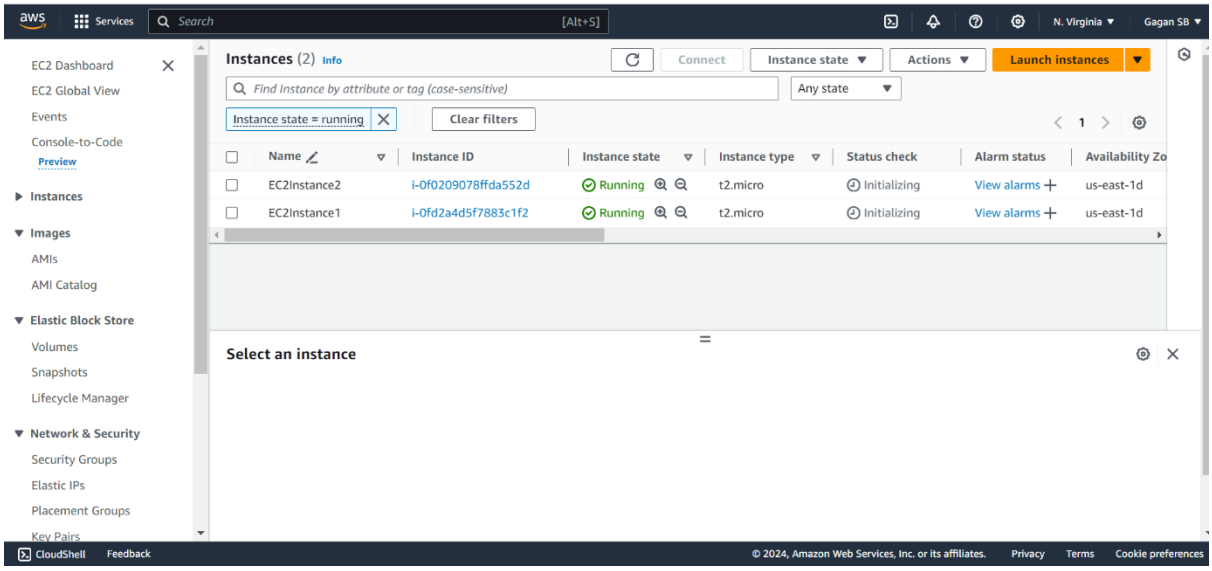

Configure test event
A test event is a JSON object that mocks the structure of requests emitted by AWS services to invoke a Lambda function. Use it to see the function's invocation result.
To invoke your function without saving an event, configure the JSON event, then choose Test.
Test event action
Create new event
Edit saved event
Event name
Test2
Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.
Event sharing settings
Private
This event is only available in the Lambda console and to the event creator. You can configure a total of 10. Learn more
Shareable
This event is available to IAM users within the same account who have permissions to access and use shareable events. Learn more
Template - optional
hello-world
Cancel
Invoke
Save


Services
Search
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N. Virginia
Gagan SB
EC2 Dashboard
EC2 Global View
Events
Console-to-Code
Preview
Instances
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Instances (2) Info
Connect
Instance state
Actions
Launch instances
Find instance by attribute or tag (case-sensitive)
Any state
Instance state = running
Clear filters
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zo
EC2Instance2
i-0f0209078ffda552d
Running
t2.micro
Initializing
View alarms
us-east-1d
EC2Instance1
i-0fd2a4d5f7883c1f2
Running
t2.micro
Initializing
View alarms
us-east-1d
Select an instance
CloudShell
Feedback
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