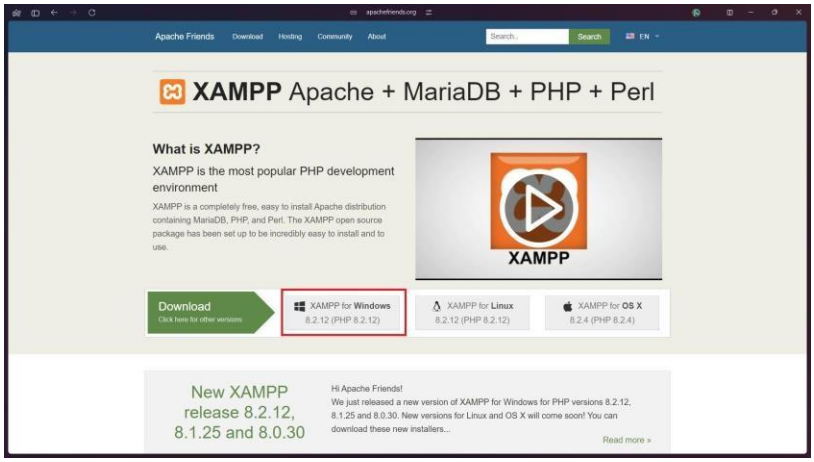
Advance Devops Exp -1A

Niraj S. Kothawade
D15A - 24

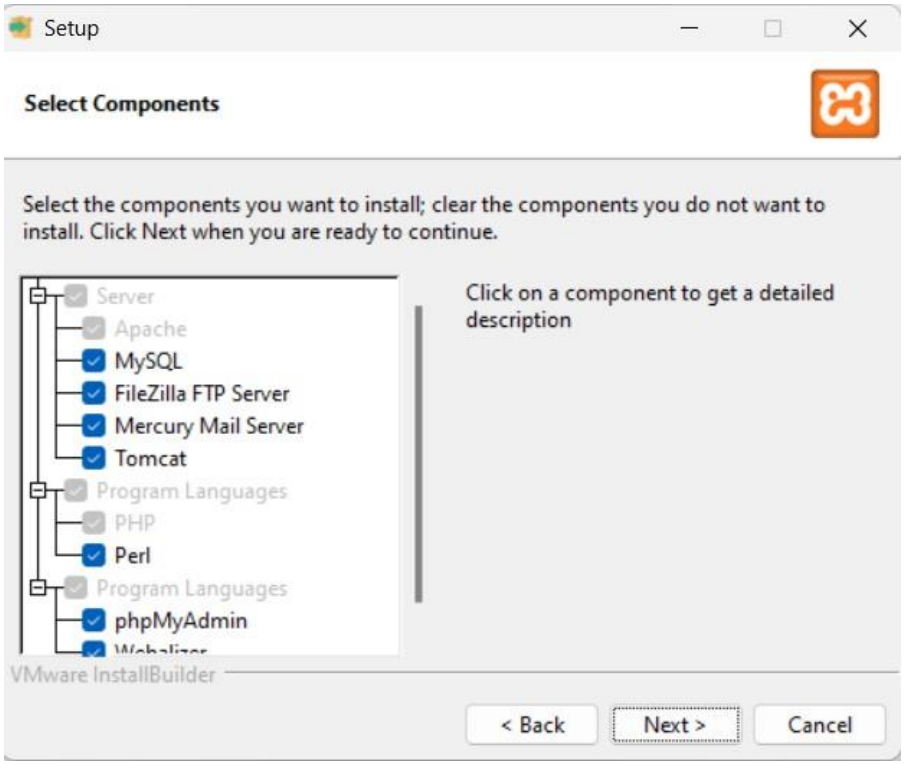
1) On local server (XAMPP)

Step 1: Install XAMPP from https://www.apachefriends.org/

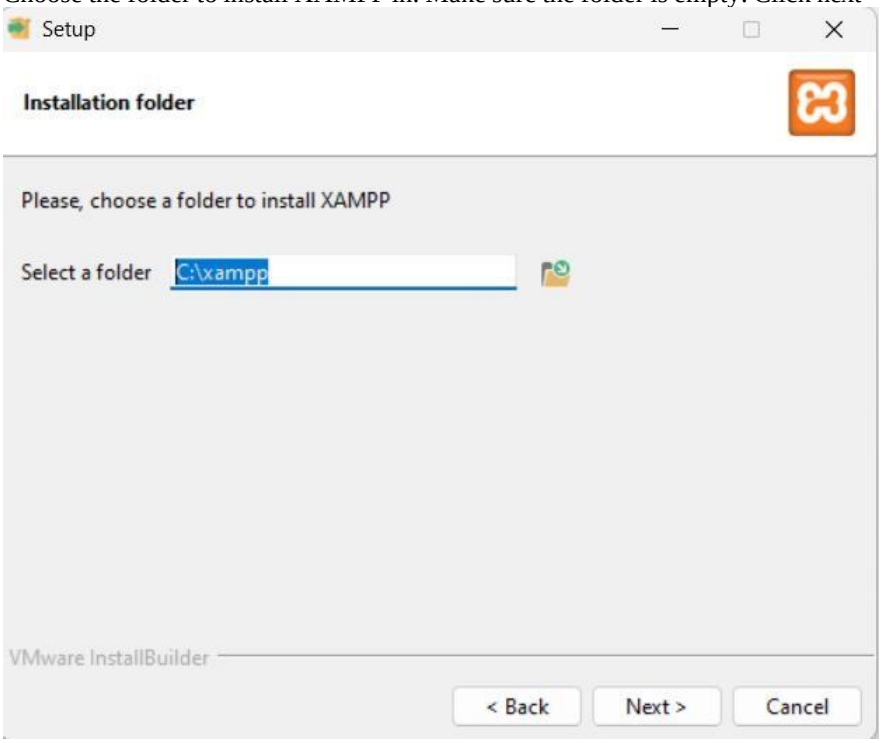
1) Select your OS. It will automatically start downloading.



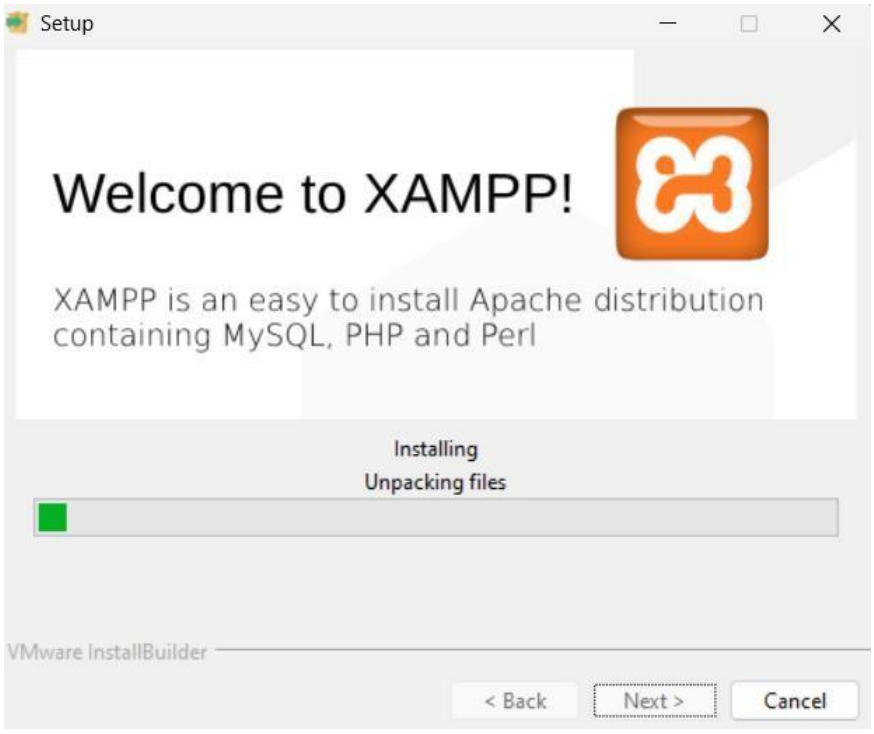
2) Open the setup file. Select all the required components and click next



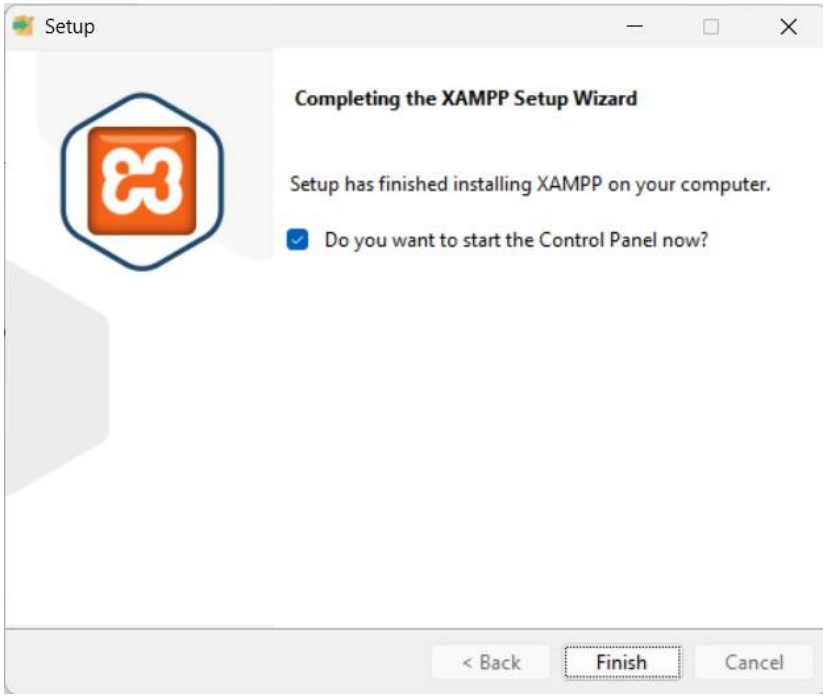
3) Choose the folder to install XAMPP in. Make sure the folder is empty. Click next



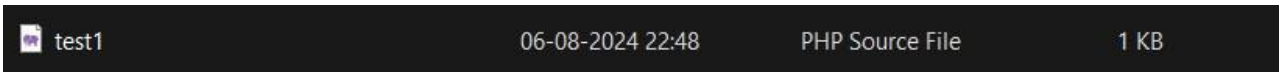
4) Select the language, click next. XAMPP starts to install



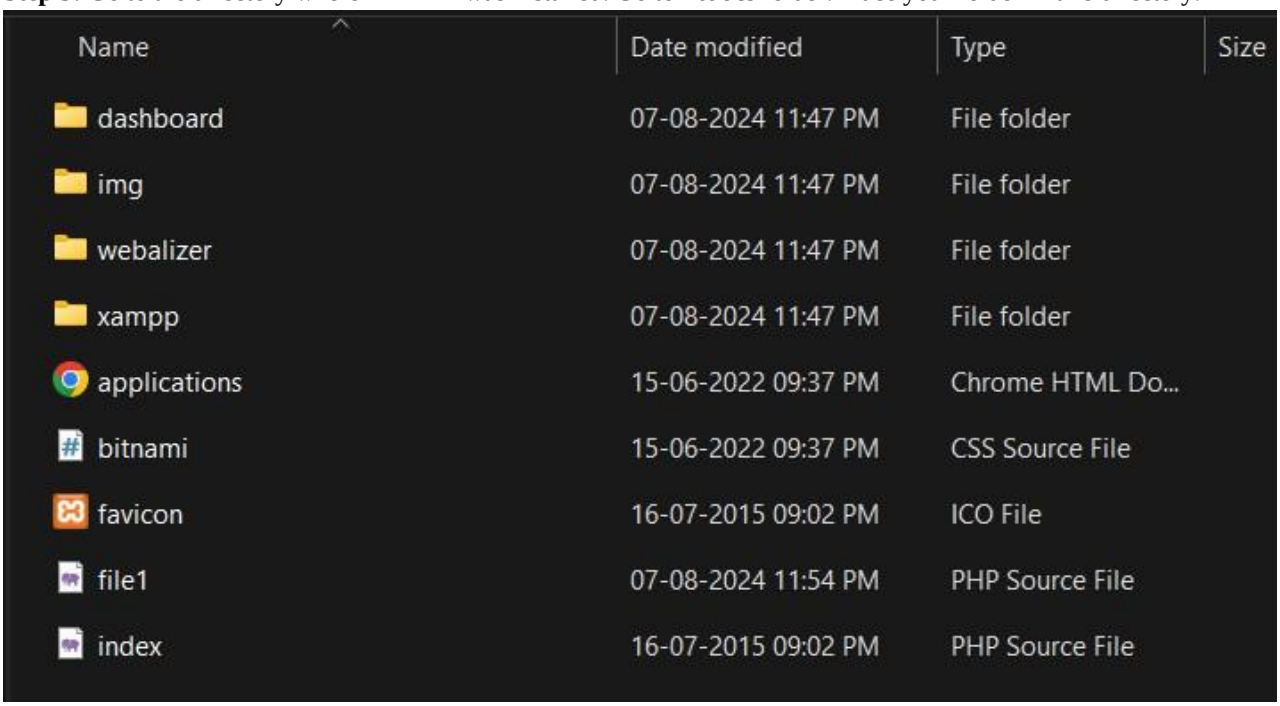
5) The installation is complete. Click Finish

6) 

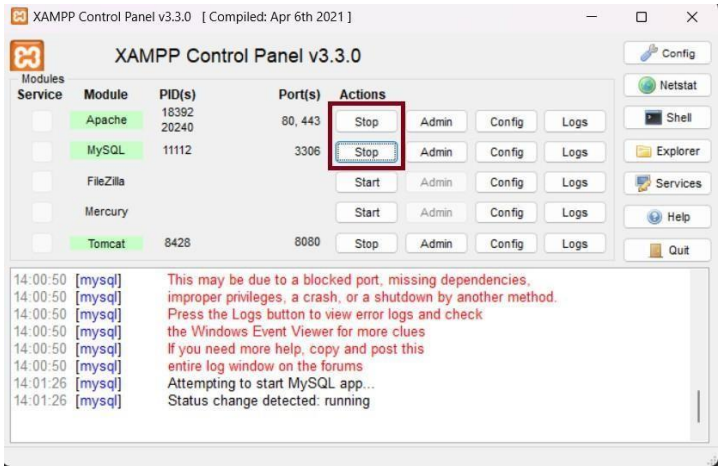
Step 2: Setup a file that is to be hosted on the server. Make sure the file has extension **.php**



Step 3: Go to the directory where XAMPP was installed. Go to **htdocs** folder. Place your folder in this directory.



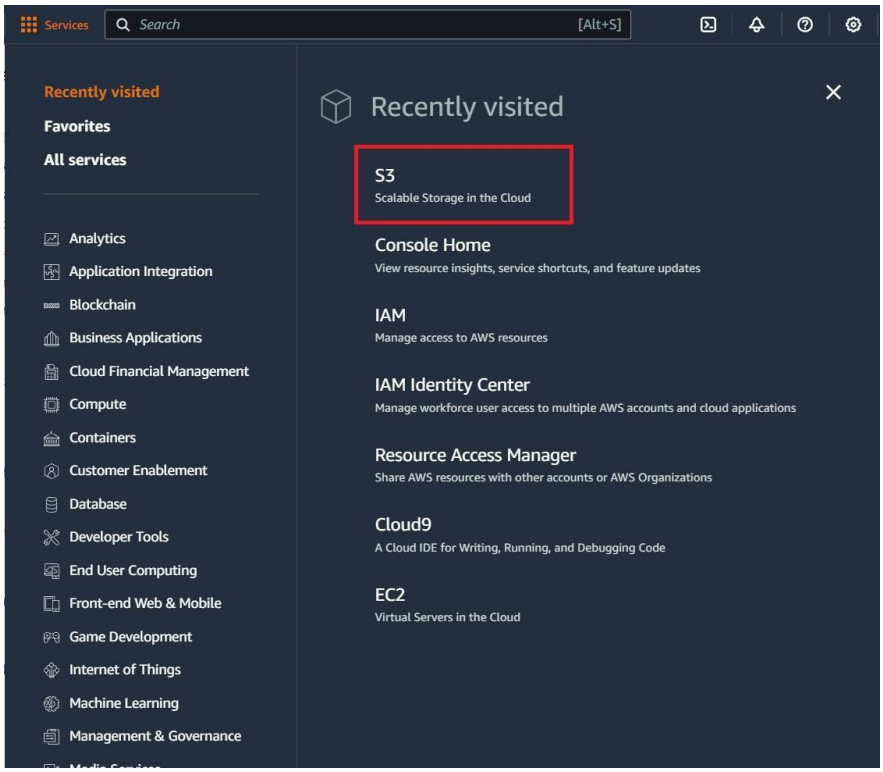
Step 4: Open XAMPP Control Panel, start the Apache service (Required) and mySQL service (if needed)



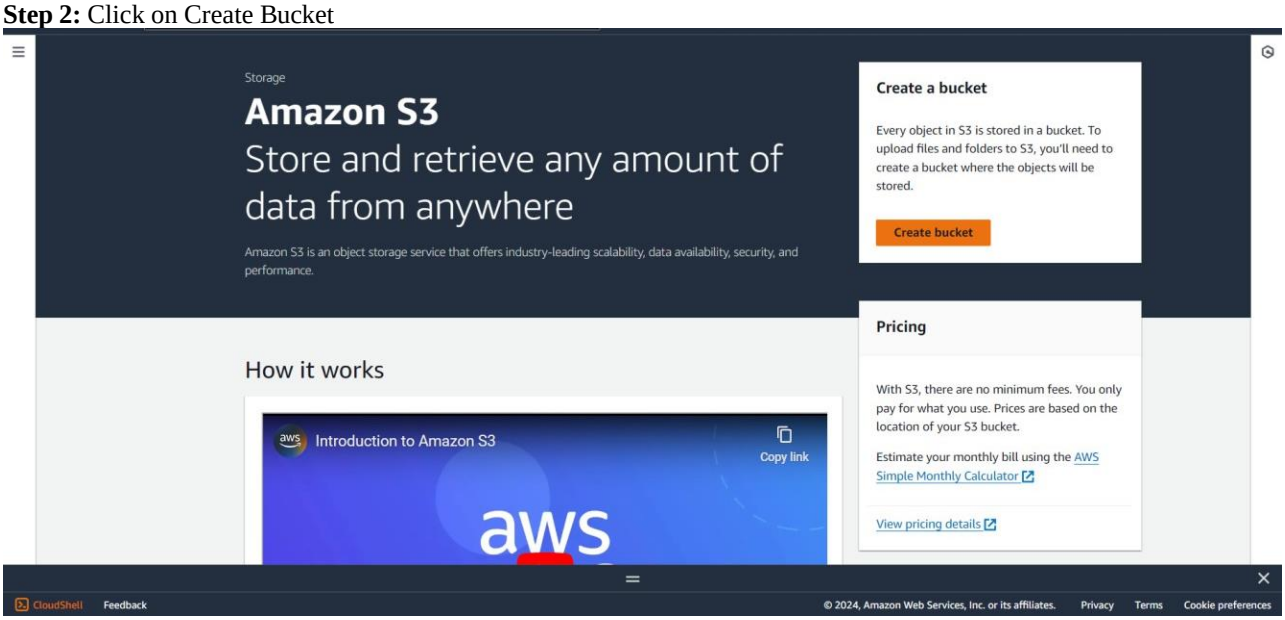
Step 5: Open your web browser. Type localhost/YOUR_FILENAME.php. This will open your website on your browser.

2) AWS S3

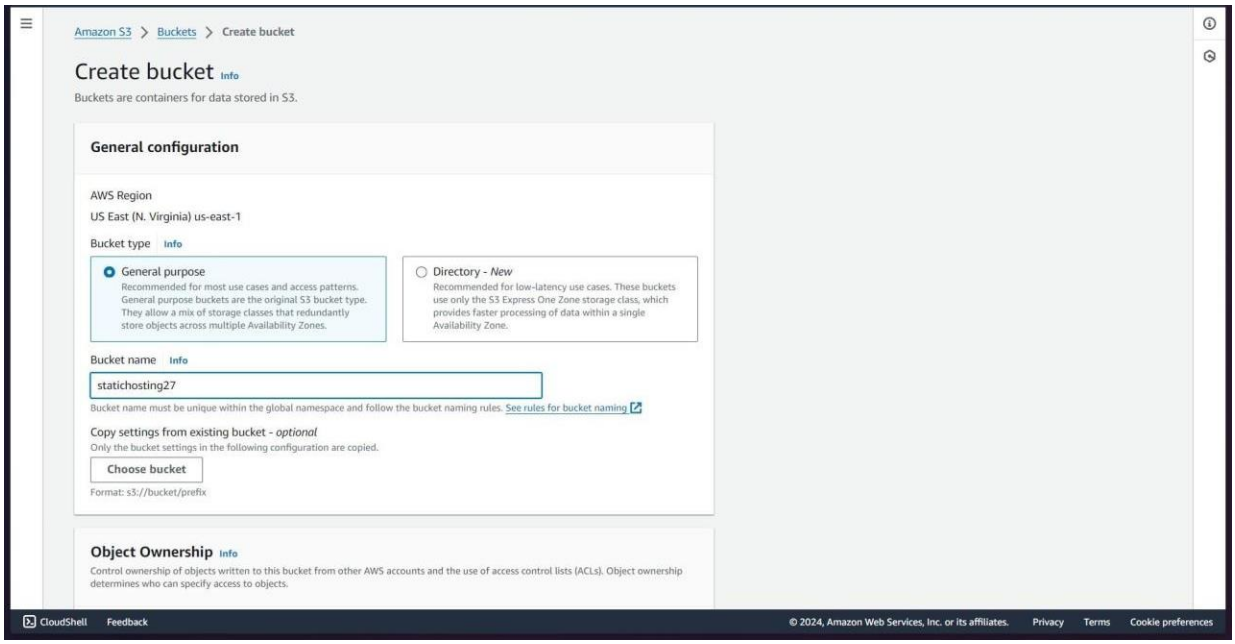
Step 1: Login to your AWS account. Go to services and open **S3.**



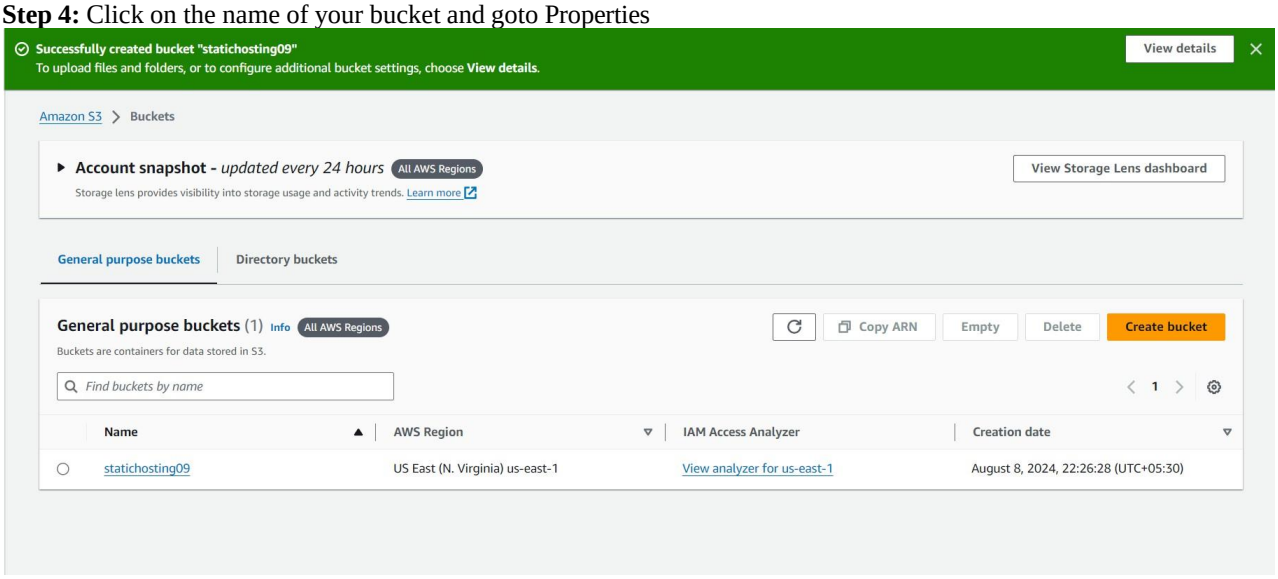
Step 2: Click on Create Bucket



Step 3: Give a name to your bucket, keeping other options default, scroll down and click on Create Bucket

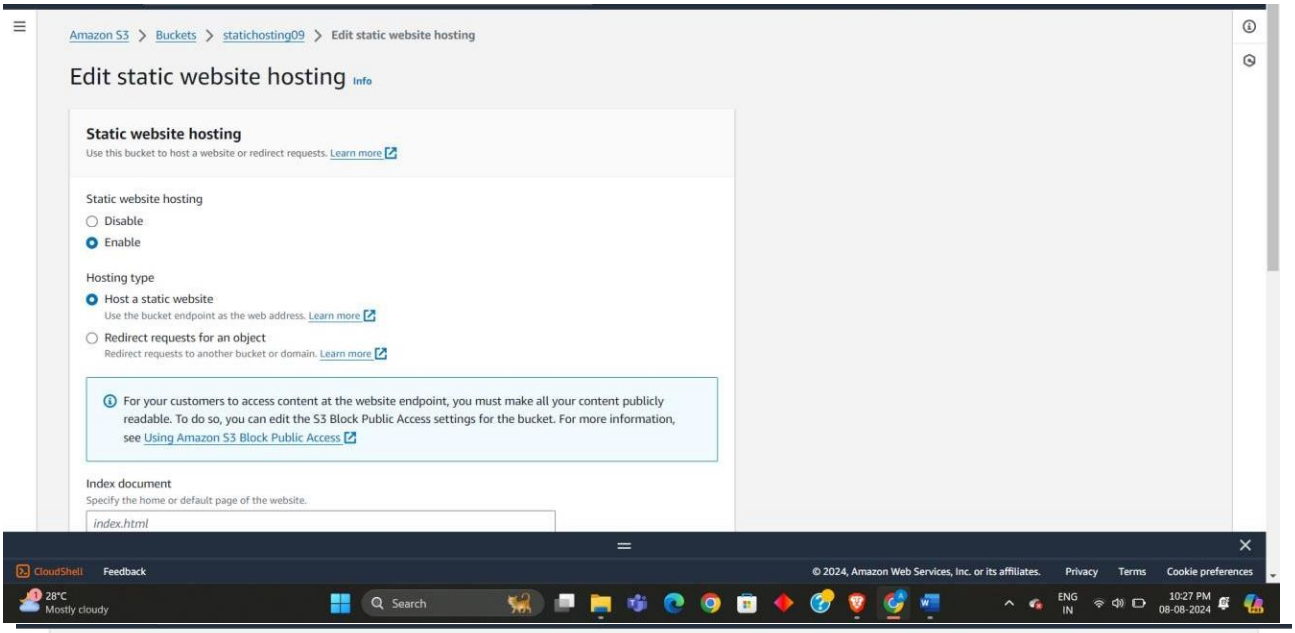


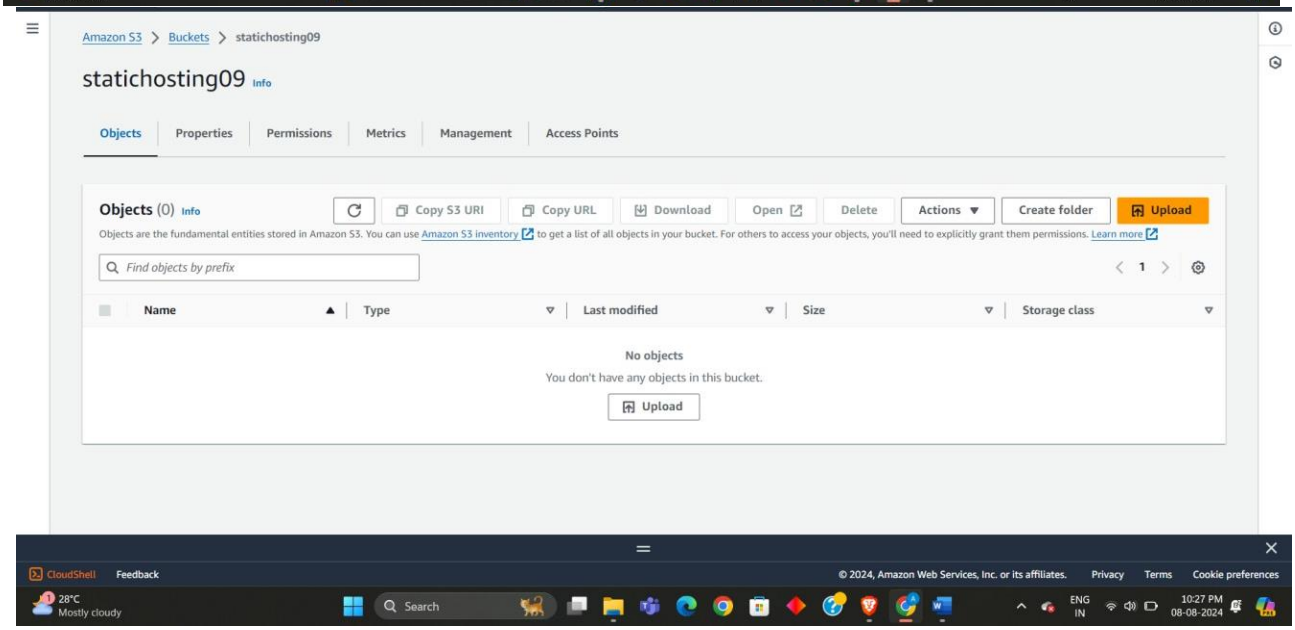
Step 4: Click on the name of your bucket and goto Properties



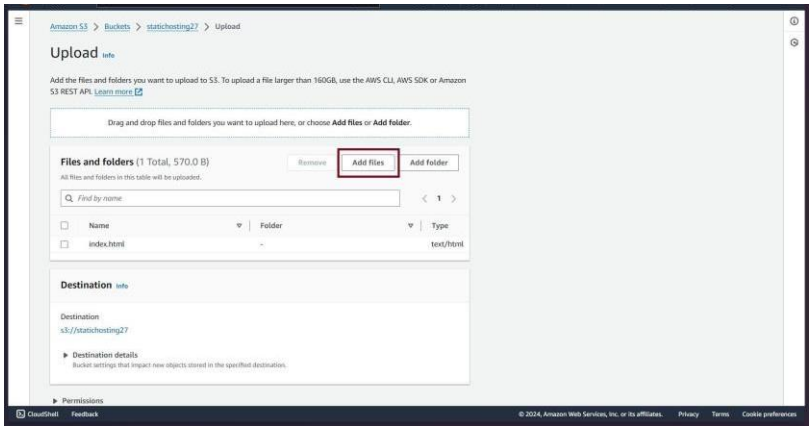
Step 5: Scroll down till you find Static website hosting, click on edit

Step 6: Enable static website hosting, in Index document, write the name of your document and in error document, give name as 404.html. Save your changes.
Step 7: Go to Objects tab and click on upload file.

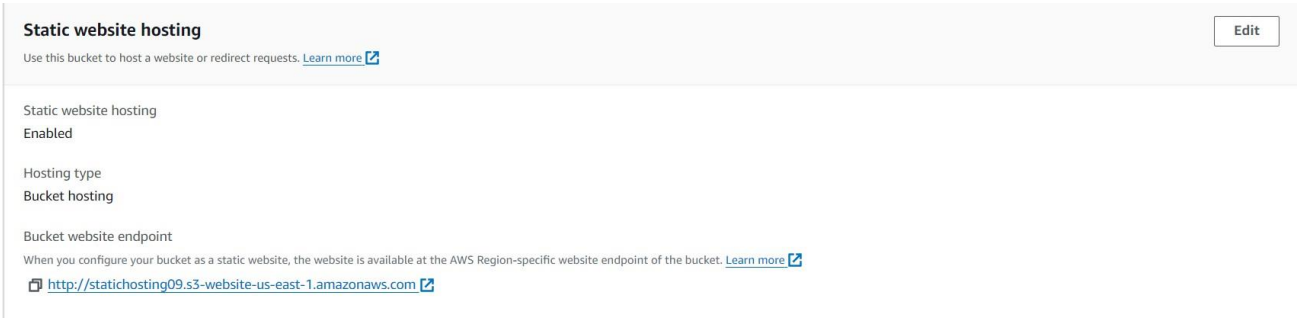




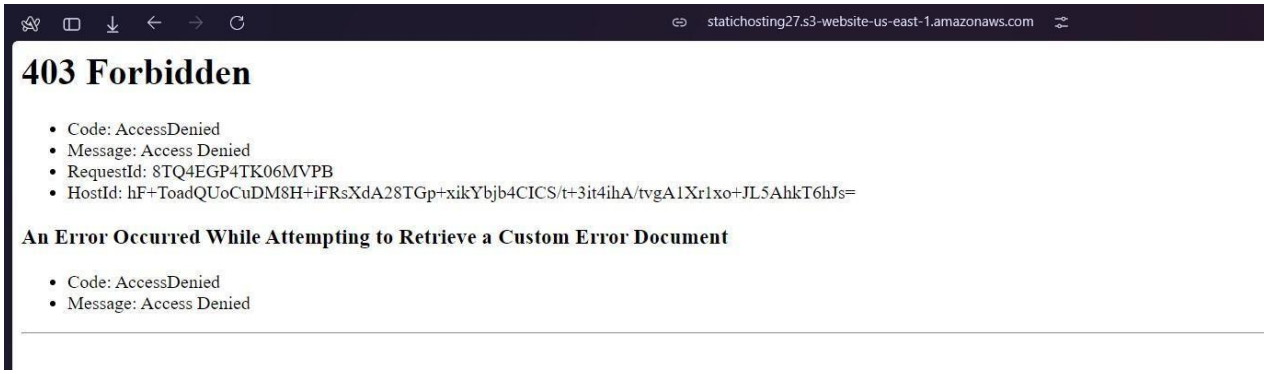
Step 8: Click on Add files. Add all the files you want to upload. Then scroll down and click on Upload



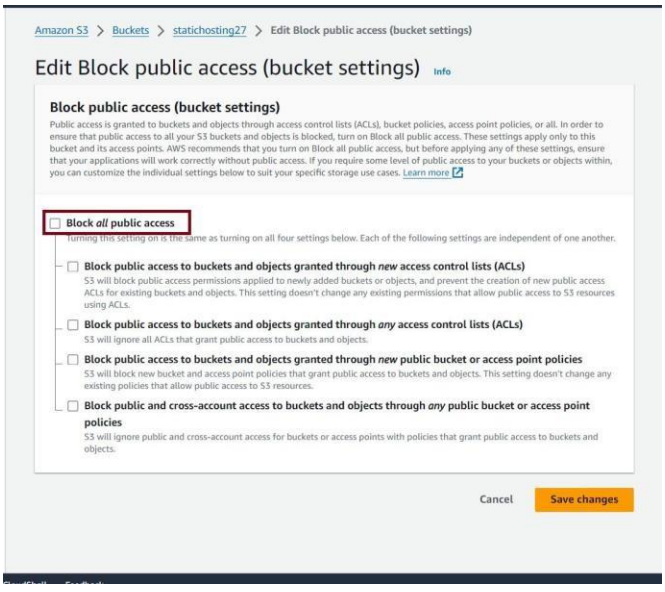
Step 9: This will take you to the Objects screen. Switch to Properties, scroll down to Static web hosting. There you would find the link (Bucket website endpoint) to your website.



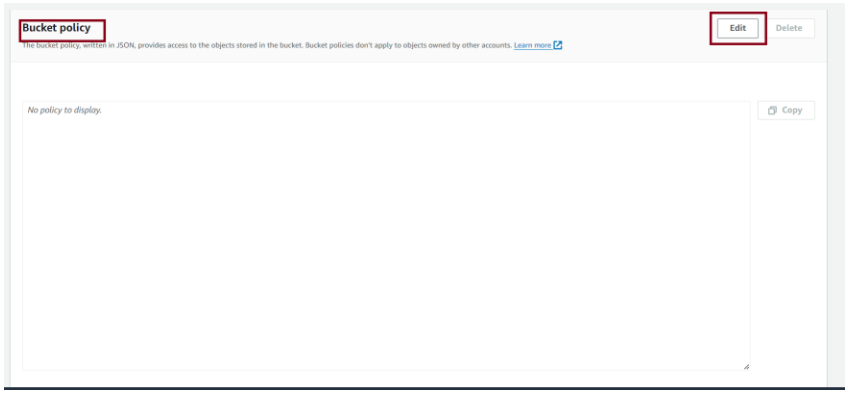
Step 10: Open the link. It will show a 403 forbidden error screen as the contents of the bucket are not available for the public users. To change this, go to Permissions tab, go to Block public access and click on edit



Step 11: Uncheck the Block all public access checkbox and click on save changes



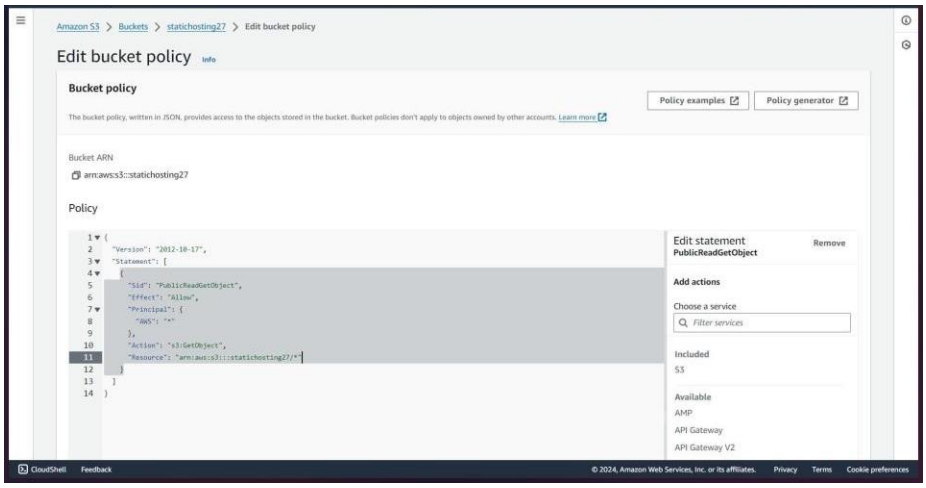
Step 12: Scroll down to bucket policy and click edit



Step 13:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "PublicReadGetObject",
      "Effect": "Allow",
      "Principal": {
        "AWS": "*"
      },
      "Action": "s3:GetObject",
      "Resource":  "arn:aws:s3:::YOUR-BUCKET-NAME-HERE/*"
    }
  ]
}
```

Paste this code snippet in the policy textarea. Replace YOUR-BUCKET-NAME-HERE with the name you have given to your bucket. Save the changes.



Step 14: Now reload the website. You can see your website

ADVANCE DEVOPS EXPERIMENT NO.1

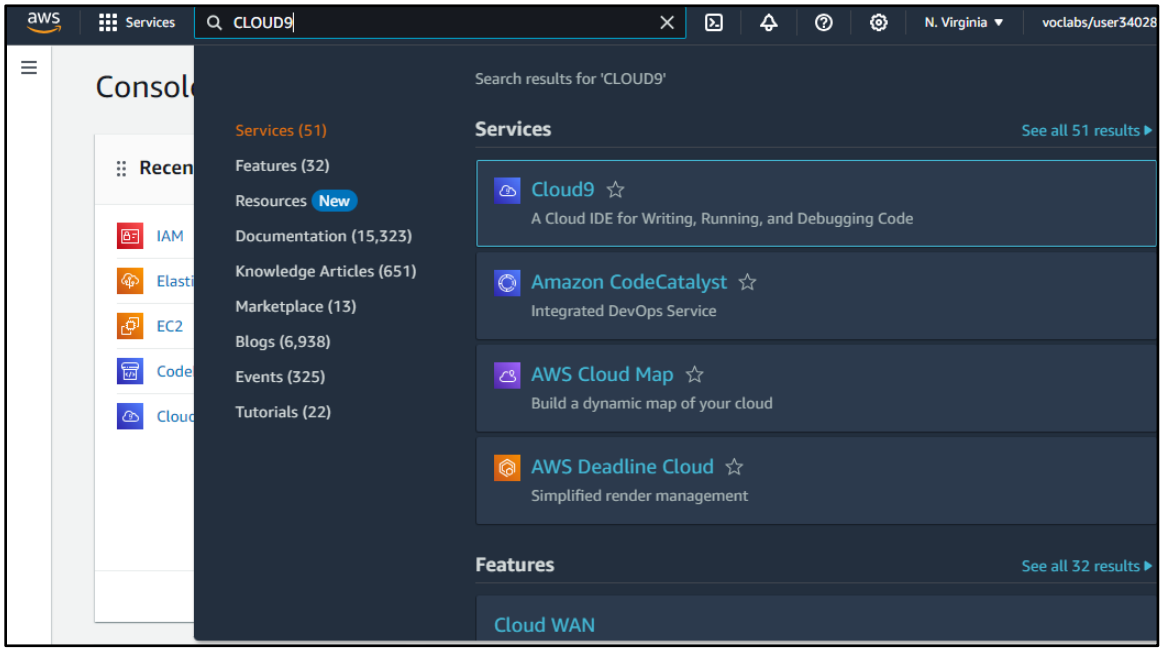
Niraj S. Kothawade
D15A - 24

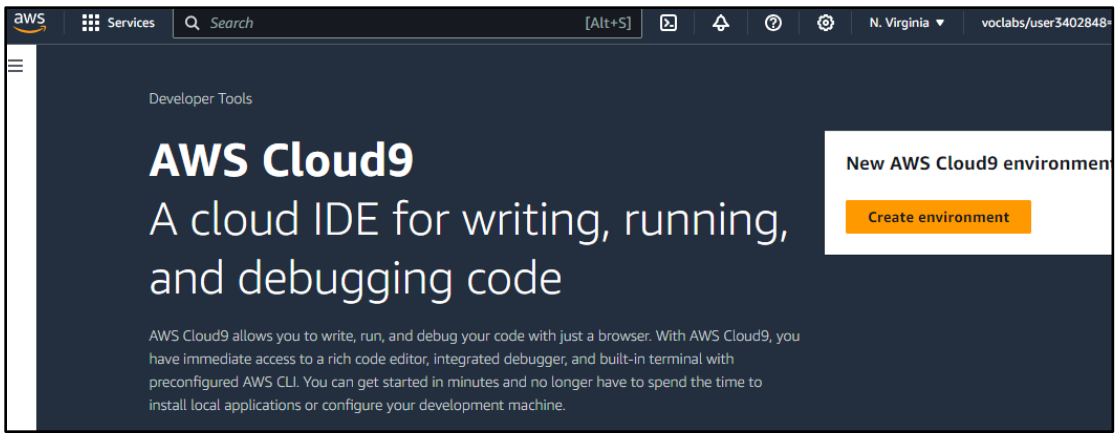
Aim:To understand the benefits of Cloud Infrastructure and Setup AWS Cloud9 IDE, Launch AWS Cloud9 IDE and Perform Collaboration Demonstration.

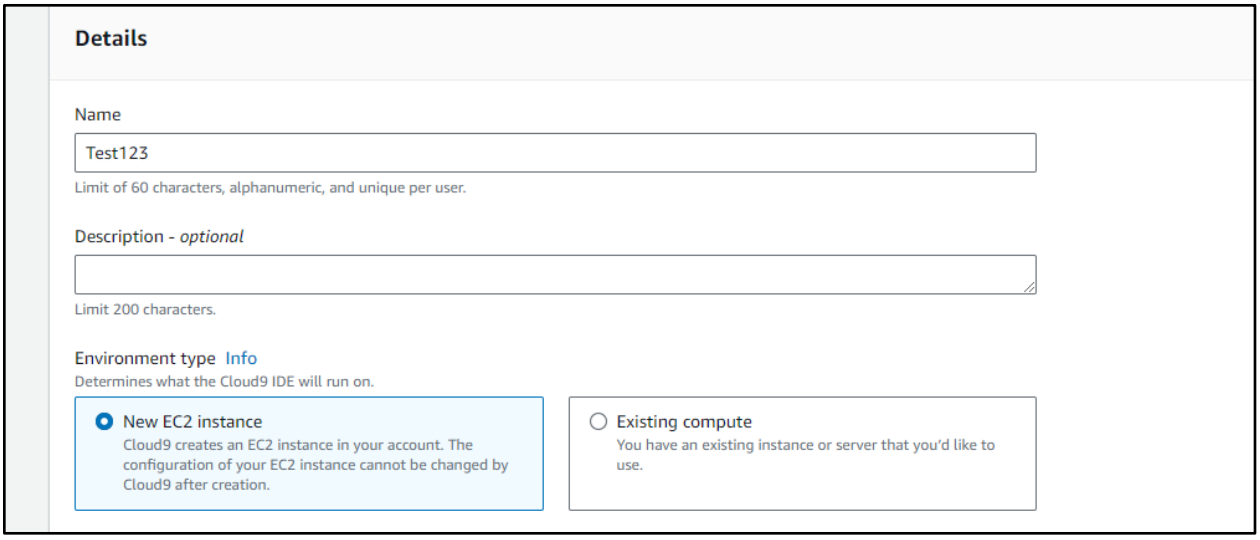
Cloud9

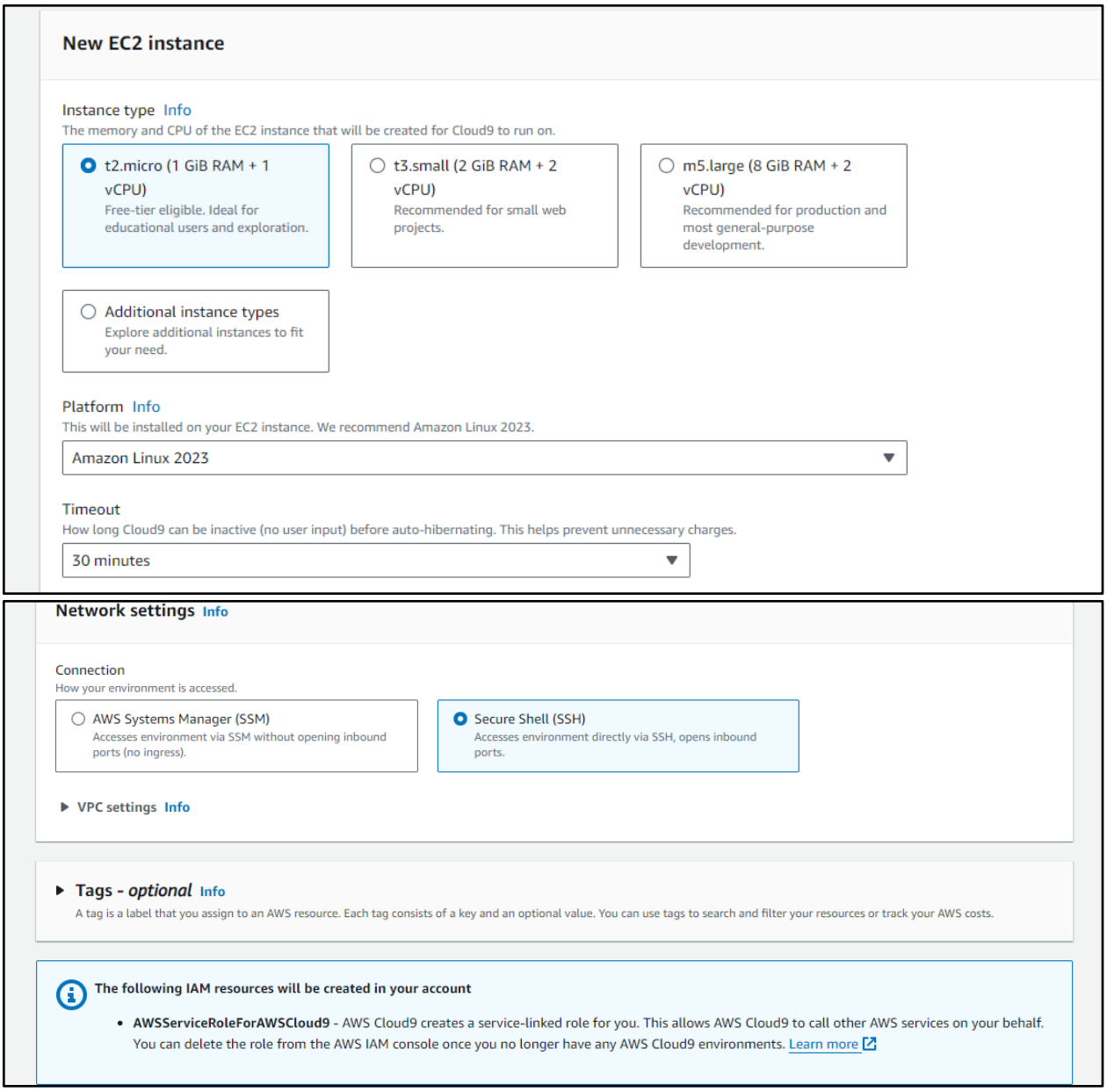
Steps:

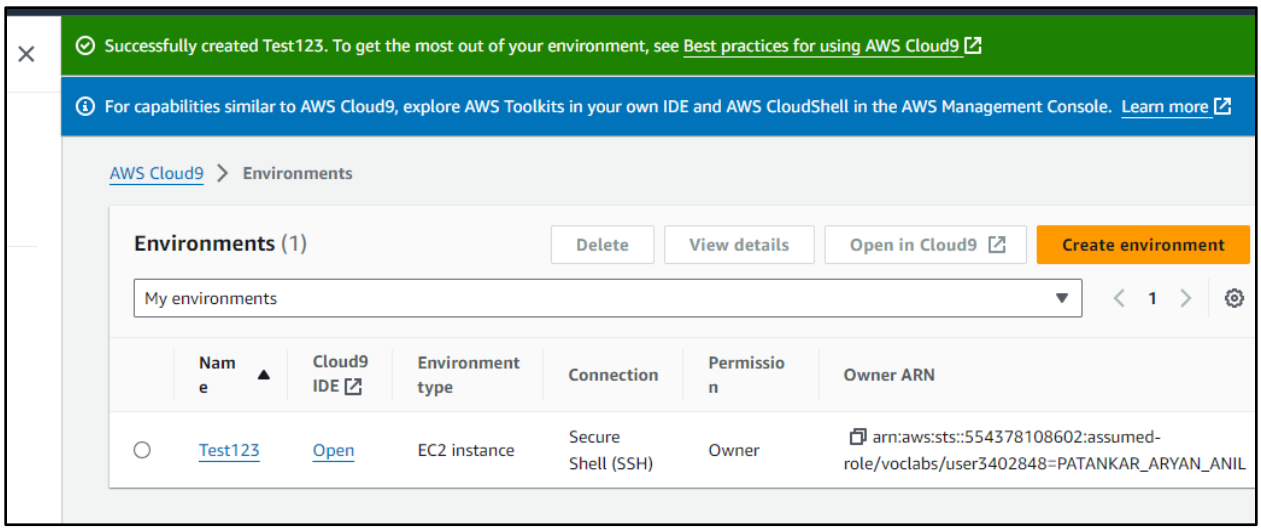
1.Open your AWS account and search for Cloud9 service inside Developer tools. Create a new Cloud9 environment by filling in the required details. Make sure you use an EC2 instance to create your environment.

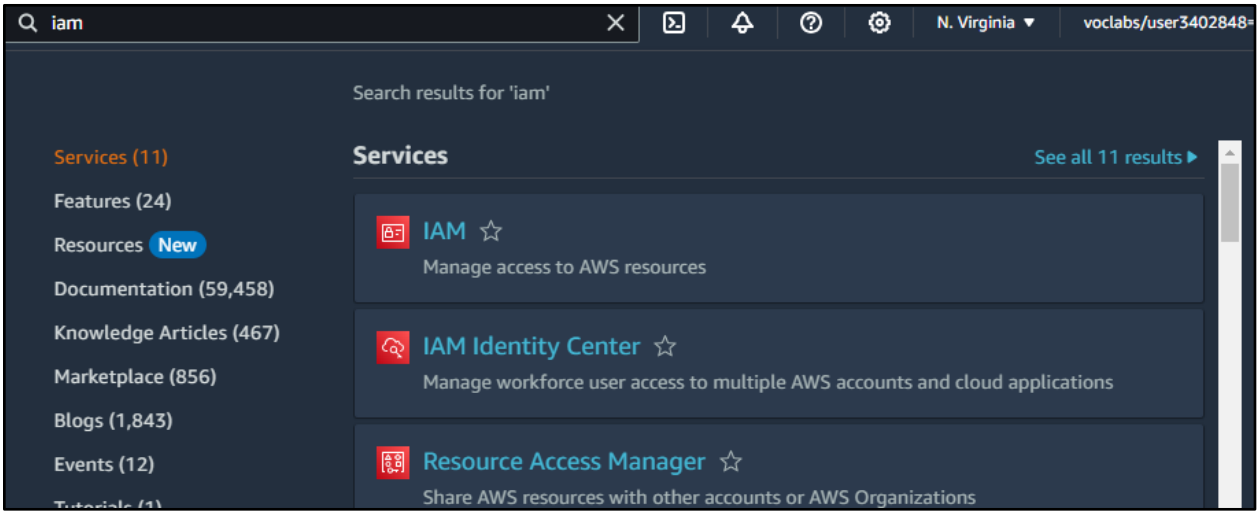


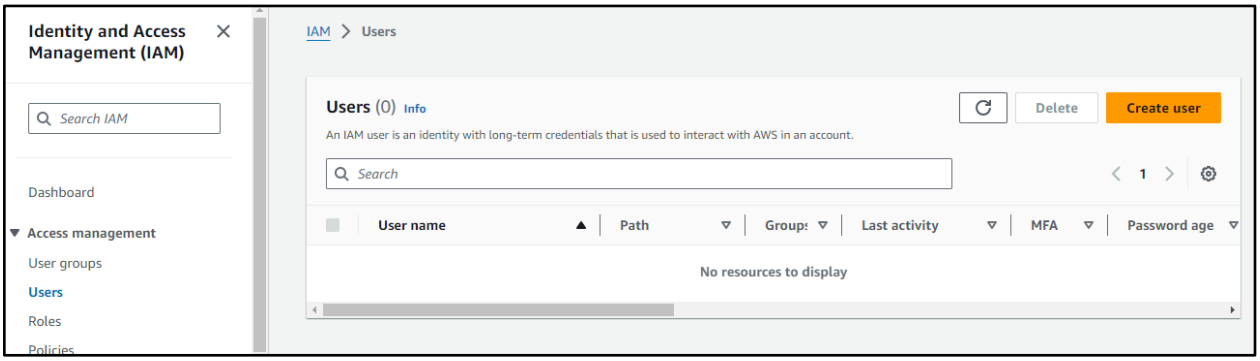

aws
Services
Search
[Alt+S]
N. Virginia
voclabs/user3402848
Developer Tools
AWS Cloud9
A cloud IDE for writing, running, and debugging code
AWS Cloud9 allows you to write, run, and debug your code with just a browser. With AWS Cloud9, you have immediate access to a rich code editor, integrated debugger, and built-in terminal with preconfigured AWS CLI. You can get started in minutes and no longer have to spend the time to install local applications or configure your development machine.
New AWS Cloud9 environment
Create environment

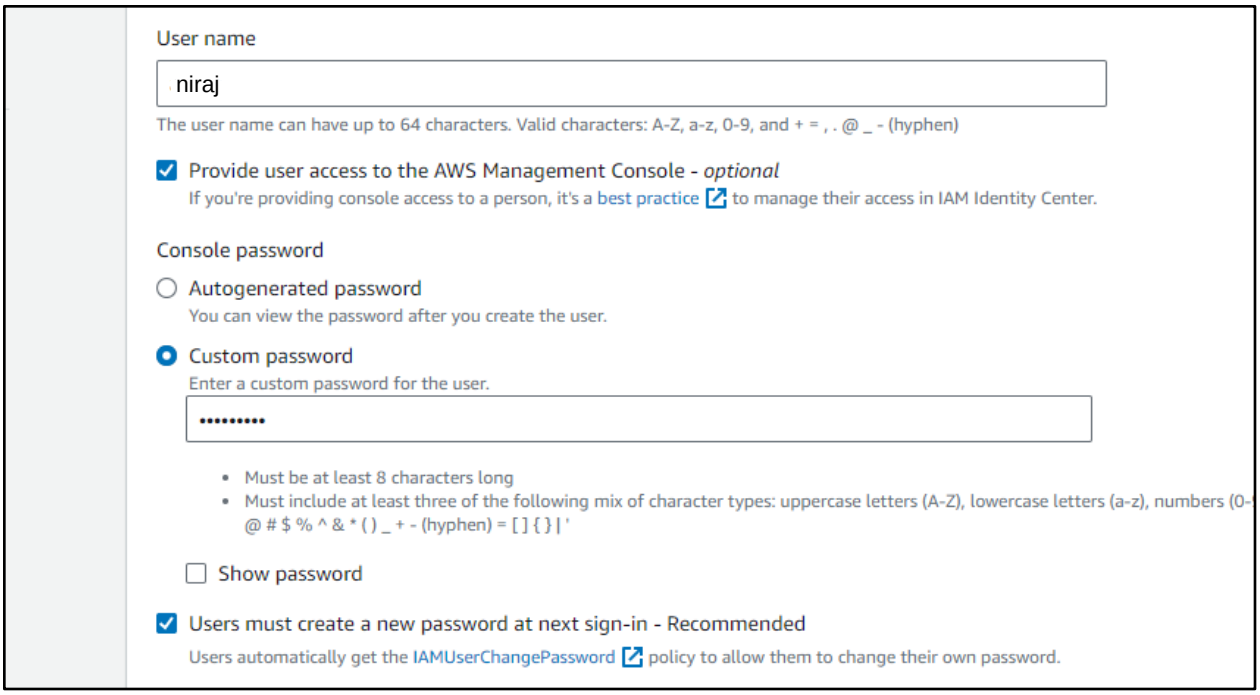

Details
Name
Test123
Limit of 60 characters, alphanumeric, and unique per user.
Description - optional
Limit 200 characters.
Environment type Info
Determines what the Cloud9 IDE will run on.
New EC2 instance
Cloud9 creates an EC2 instance in your account. The configuration of your EC2 instance cannot be changed by Cloud9 after creation.
Existing compute
You have an existing instance or server that you'd like to use.

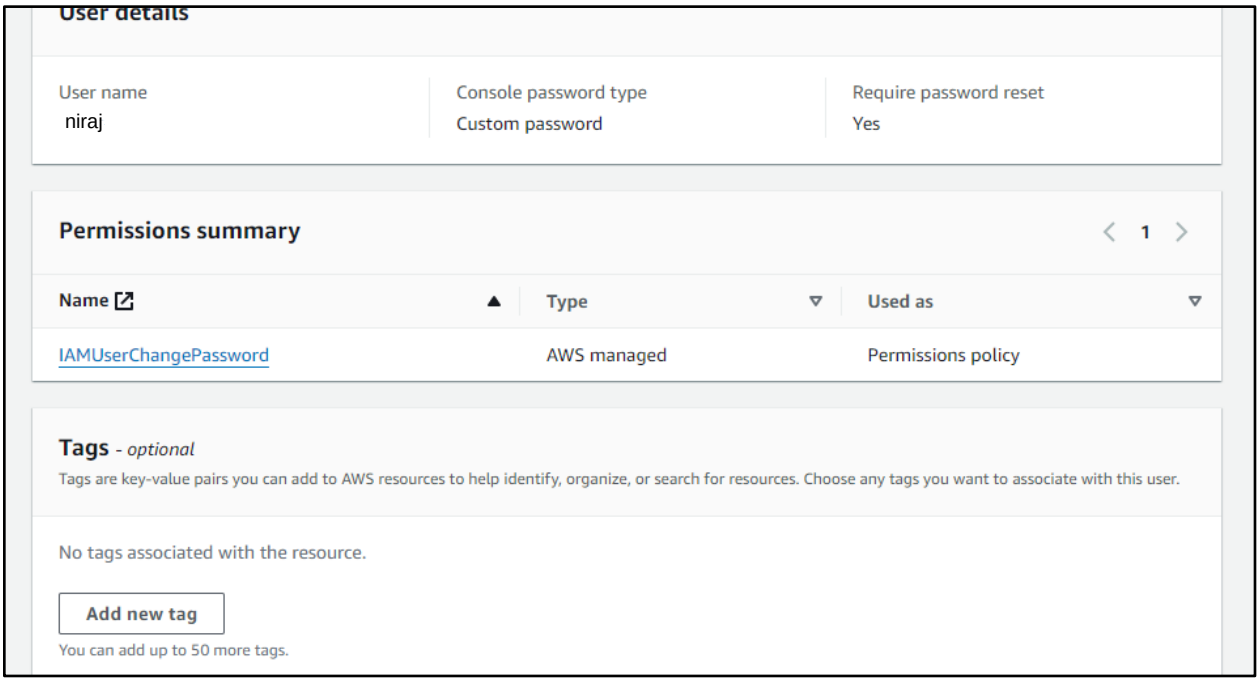

New EC2 instance
Instance type Info
The memory and CPU of the EC2 instance that will be created for Cloud9 to run on.
t2.micro (1 GiB RAM + 1 vCPU)
Free-tier eligible. Ideal for educational users and exploration.
t3.small (2 GiB RAM + 2 vCPU)
Recommended for small web projects.
m5.large (8 GiB RAM + 2 vCPU)
Recommended for production and most general-purpose development.
Additional instance types
Explore additional instances to fit your need.
Platform Info
This will be installed on your EC2 instance. We recommend Amazon Linux 2023.
Amazon Linux 2023
Timeout
How long Cloud9 can be inactive (no user input) before auto-hibernating. This helps prevent unnecessary charges.
30 minutes
Network settings Info
Connection
How your environment is accessed.
AWS Systems Manager (SSM)
Accesses environment via SSM without opening inbound ports (no ingress).
Secure Shell (SSH)
Accesses environment directly via SSH, opens inbound ports.
VPC settings Info
Tags - optional Info
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.
The following IAM resources will be created in your account
AWSServiceRoleForAWSCloud9 - AWS Cloud9 creates a service-linked role for you. This allows AWS Cloud9 to call other AWS services on your behalf. You can delete the role from the AWS IAM console once you no longer have any AWS Cloud9 environments. Learn more

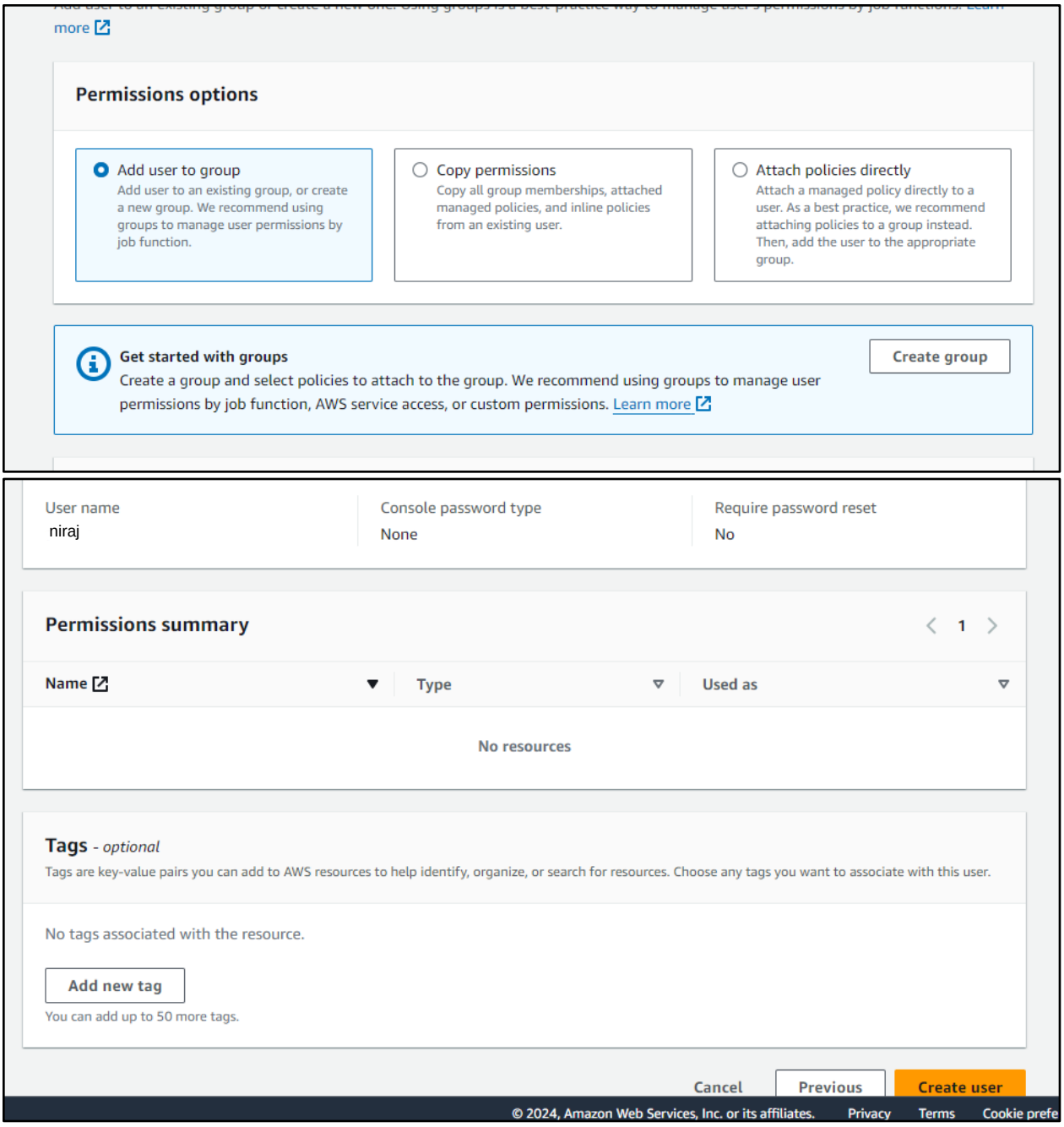

Successfully created Test123. To get the most out of your environment, see Best practices for using AWS Cloud9
For capabilities similar to AWS Cloud9, explore AWS Toolkits in your own IDE and AWS CloudShell in the AWS Management Console. Learn more
AWS Cloud9 > Environments
Environments (1)
Delete
View details
Open in Cloud9
Create environment
My environments
Name
Cloud9 IDE
Environment type
Connection
Permission
Owner ARN
Test123
Open
EC2 instance
Secure Shell (SSH)
Owner
arn:aws:sts::554378108602:assumed-role/voclabs/user3402848=PATANKAR_ARYAN_ANIL


iam
N. Virginia
voclabs/user3402848
Search results for 'iam'
Services (11)
Features (24)
Resources New
Documentation (59,458)
Knowledge Articles (467)
Marketplace (856)
Blogs (1,843)
Events (12)
Services
See all 11 results
IAM
Manage access to AWS resources
IAM Identity Center
Manage workforce user access to multiple AWS accounts and cloud applications
Resource Access Manager
Share AWS resources with other accounts or AWS Organizations

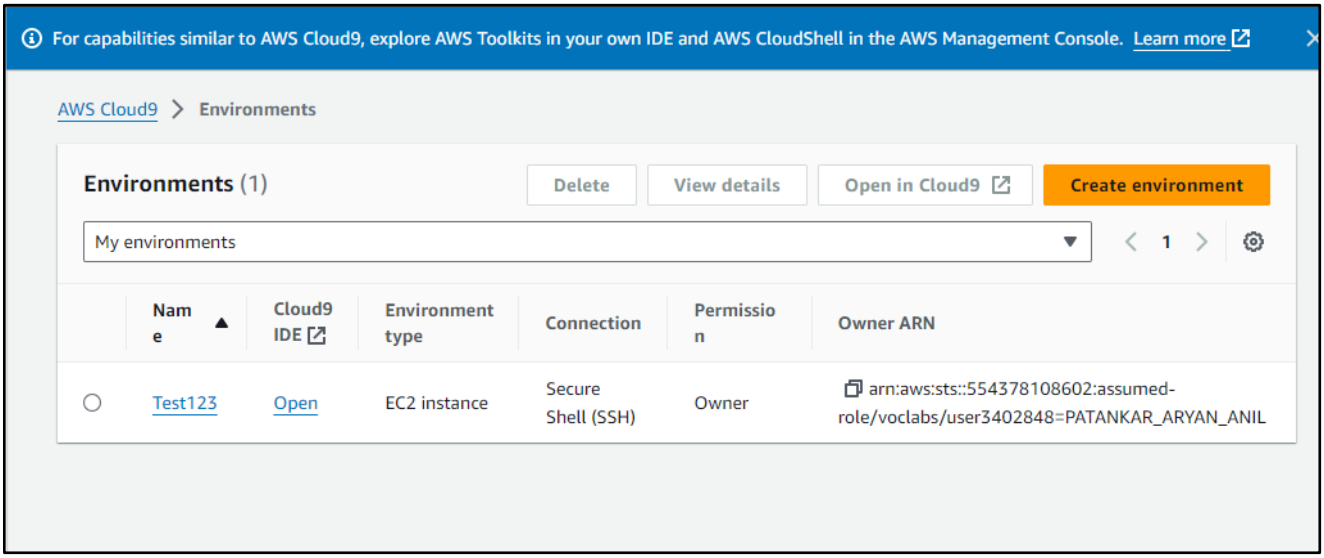

Identity and Access Management (IAM)
Search IAM
Dashboard
Access management
User groups
Users
Roles
Policies
IAM > Users
Users (0) Info
An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.
Delete
Create user
Search
User name
Path
Group
Last activity
MFA
Password age
No resources to display


User name
niraj
The user name can have up to 64 characters. Valid characters: A-Z, a-z, 0-9, and + = , . @ _ - (hyphen)
Provide user access to the AWS Management Console - optional
If you're providing console access to a person, it's a best practice to manage their access in IAM Identity Center.
Console password
Autogenerated password
You can view the password after you create the user.
Custom password
Enter a custom password for the user.
••••••••••
Must be at least 8 characters long
Must include at least three of the following mix of character types: uppercase letters (A-Z), lowercase letters (a-z), numbers (0-
@ # $ % ^ & * ( ) _ + - (hyphen) = [ ] { } | '
Show password
Users must create a new password at next sign-in - Recommended
Users automatically get the IAMUserChangePassword policy to allow them to change their own password.

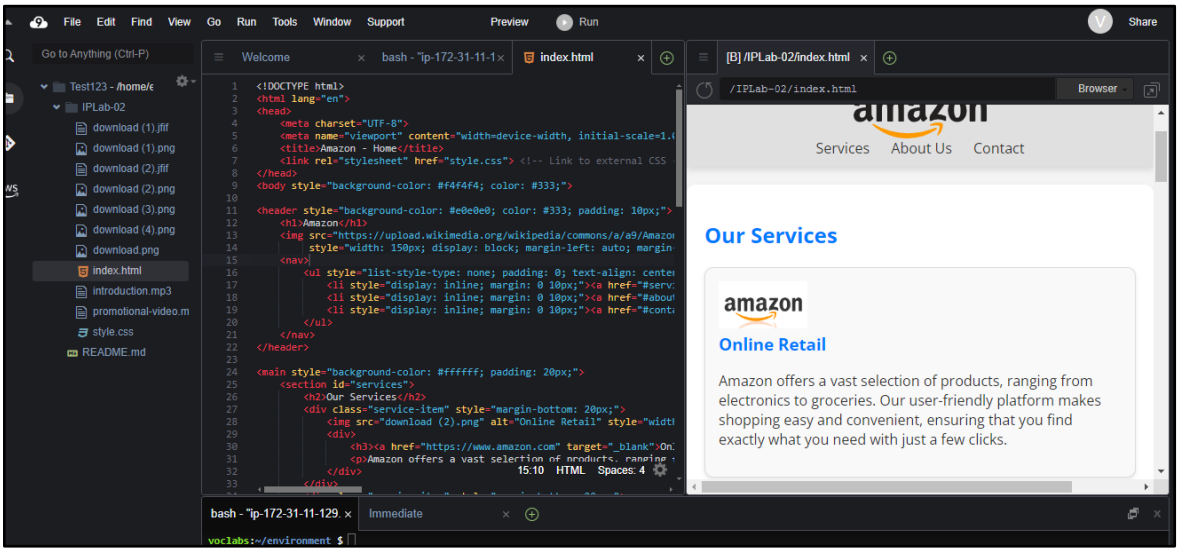

User details
User name
niraj
Console password type
Custom password
Require password reset
Yes
Permissions summary
1
Name
Type
Used as
IAMUserChangePassword
AWS managed
Permissions policy
Tags - optional
Tags are key-value pairs you can add to AWS resources to help identify, organize, or search for resources. 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.


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
Create group
User name
niraj
Console password type
None
Require password reset
No
Permissions summary
1
Name
Type
Used as
No resources
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
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie prefe

Here the environment has been successfully created



2.We have successfully set up and launched our Cloud9 environment. Over here, we can build and develop programs as per our desire. We are also allowed to collaborate with multiple other users and access shared resources.

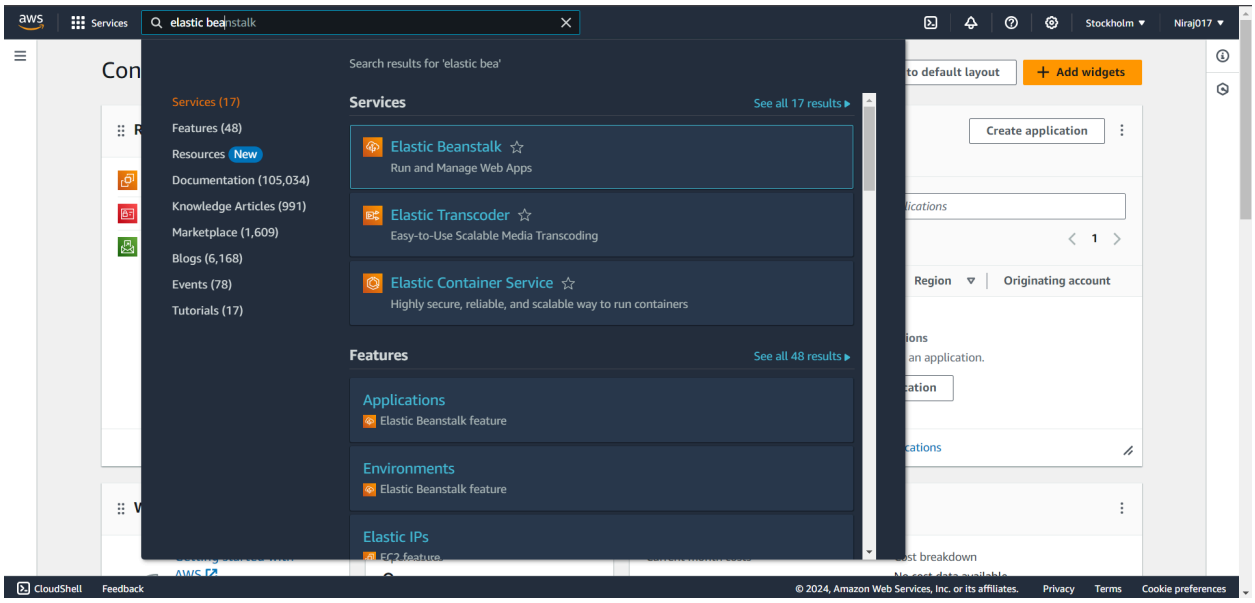


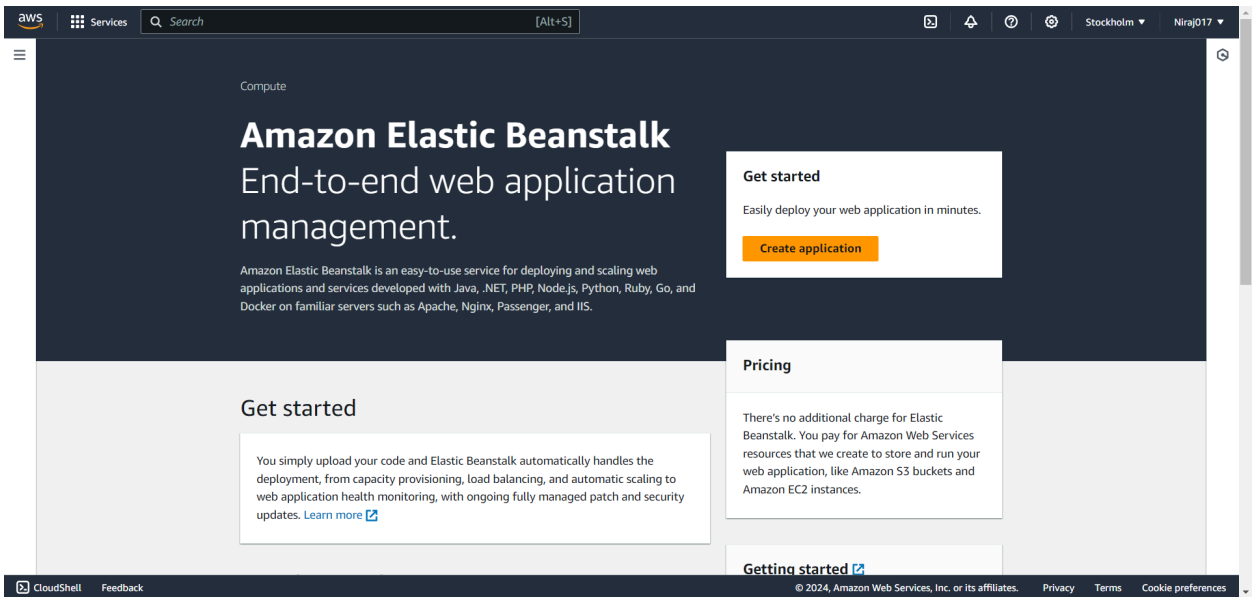
Further, we are supposed to login from another browser using the credentials of the IAM user, to access the shared cloud9 environment with us. These steps could not be completed because Cloud9 services have been disrupted and there is no access to the IAM user from the remote login.

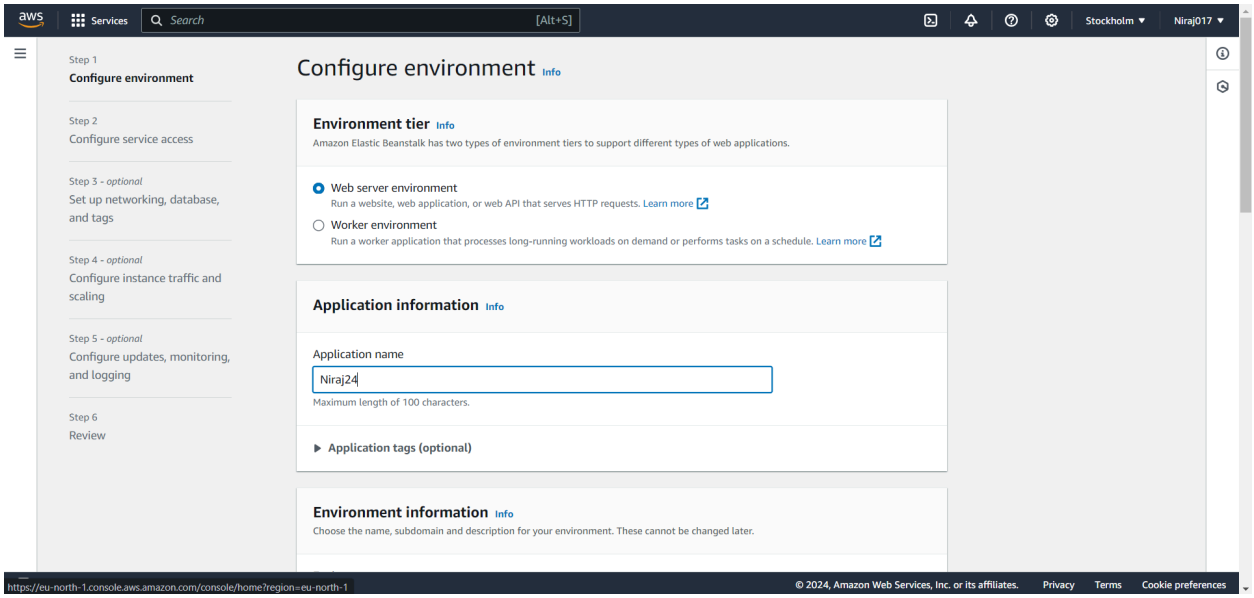
Advance DevOps Exp - 2

Niraj S. Kothawade
D15A -22

Aim: To Build Your Application using AWS CodeBuild and Deploy on S3 / SEBS using AWS CodePipeline, deploy Sample Application on EC2 instance using AWS CodeDeploy.






aws
Services
Search
[Alt+S]
Stockholm
Niraj017
Step 1
Configure environment
Step 2
Configure service access
Step 3 - optional
Set up networking, database, and tags
Step 4 - optional
Configure instance traffic and scaling
Step 5 - optional
Configure updates, monitoring, and logging
Step 6
Review
Configure environment Info
Environment tier Info
Amazon Elastic Beanstalk has two types of environment tiers to support different types of web applications.
Web server environment
Run a website, web application, or web API that serves HTTP requests. Learn more
Worker environment
Run a worker application that processes long-running workloads on demand or performs tasks on a schedule. Learn more
Application information Info
Application name
Niraj24
Maximum length of 100 characters.
Application tags (optional)
Environment information Info
Choose the name, subdomain and description for your environment. These cannot be changed later.
https://eu-north-1.console.aws.amazon.com/console/home?region=eu-north-1
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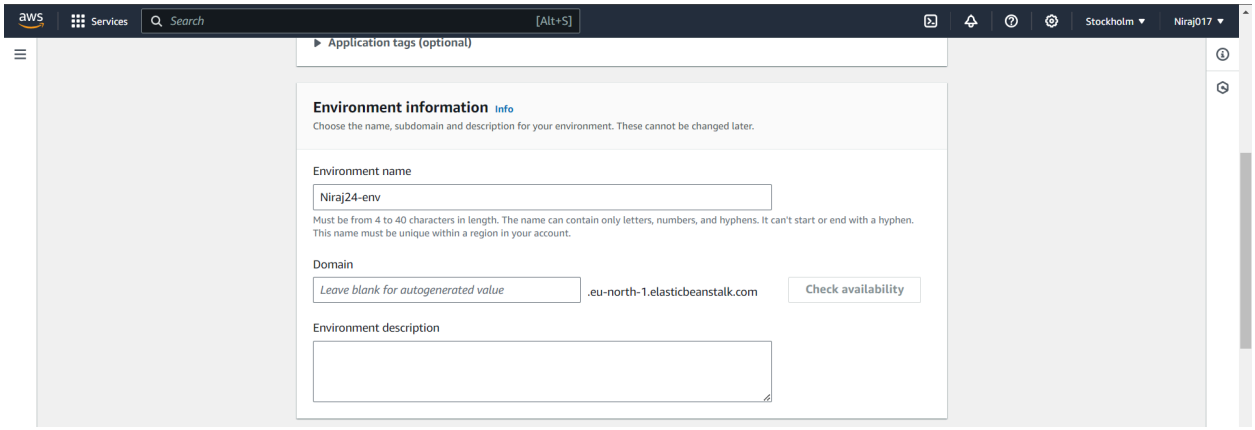
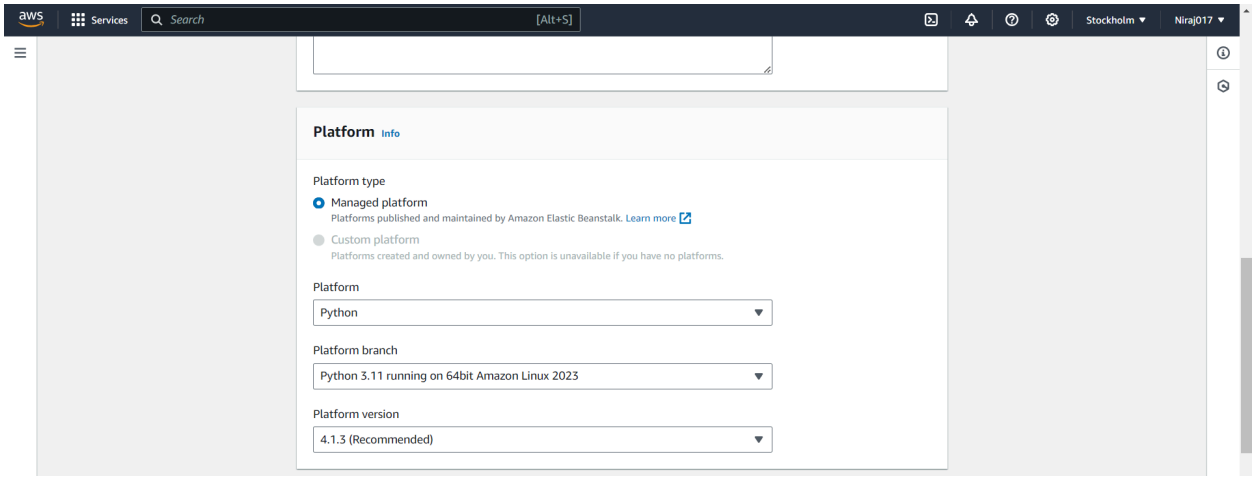
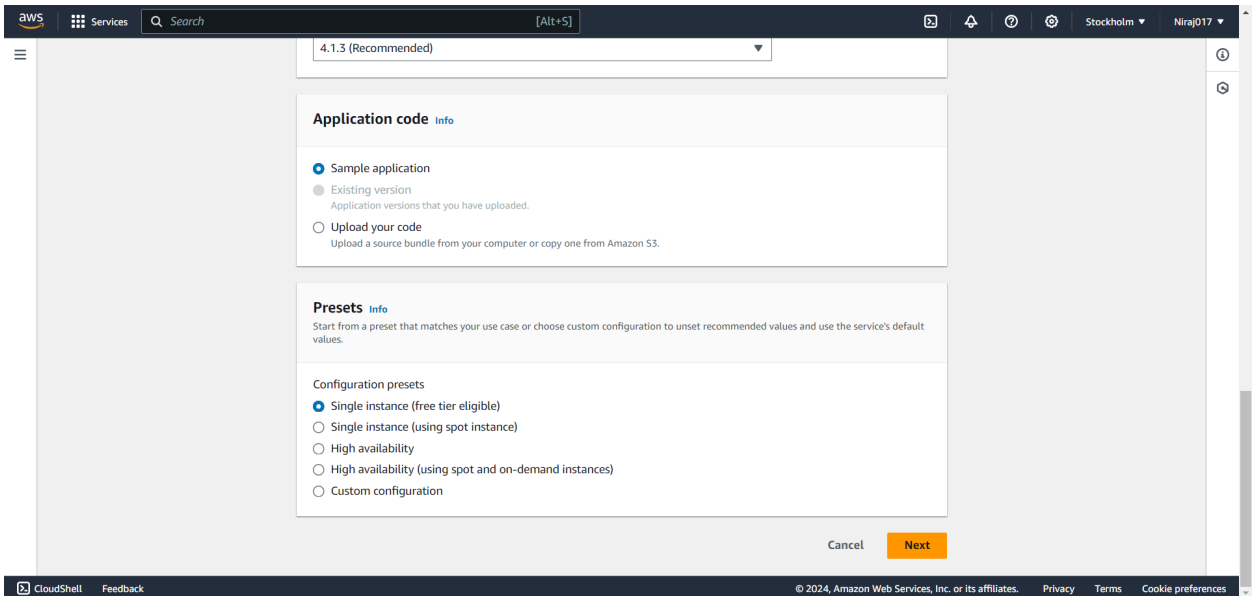
Privacy
Terms
Cookie preferences


aws
Services
Search
[Alt+S]
Stockholm
Niraj017
Application tags (optional)
Environment information Info
Choose the name, subdomain and description for your environment. These cannot be changed later.
Environment name
Niraj24-env
Must be from 4 to 40 characters in length. The name can contain only letters, numbers, and hyphens. It can't start or end with a hyphen. This name must be unique within a region in your account.
Domain
Leave blank for autogenerated value
.eu-north-1.elasticbeanstalk.com
Check availability
Environment description


aws
Services
Search
[Alt+S]
Stockholm
Niraj017
Platform Info
Platform type
Managed platform
Platforms published and maintained by Amazon Elastic Beanstalk. Learn more
Custom platform
Platforms created and owned by you. This option is unavailable if you have no platforms.
Platform
Python
Platform branch
Python 3.11 running on 64bit Amazon Linux 2023
Platform version
4.1.3 (Recommended)


aws
Services
Search
[Alt+S]
Stockholm
Niraj017
4.1.3 (Recommended)
Application code Info
Sample application
Existing version
Application versions that you have uploaded.
Upload your code
Upload a source bundle from your computer or copy one from Amazon S3.
Presets Info
Start from a preset that matches your use case or choose custom configuration to unset recommended values and use the service's default values.
Configuration presets
Single instance (free tier eligible)
Single instance (using spot instance)
High availability
High availability (using spot and on-demand instances)
Custom configuration
Cancel
Next
CloudShell
Feedback
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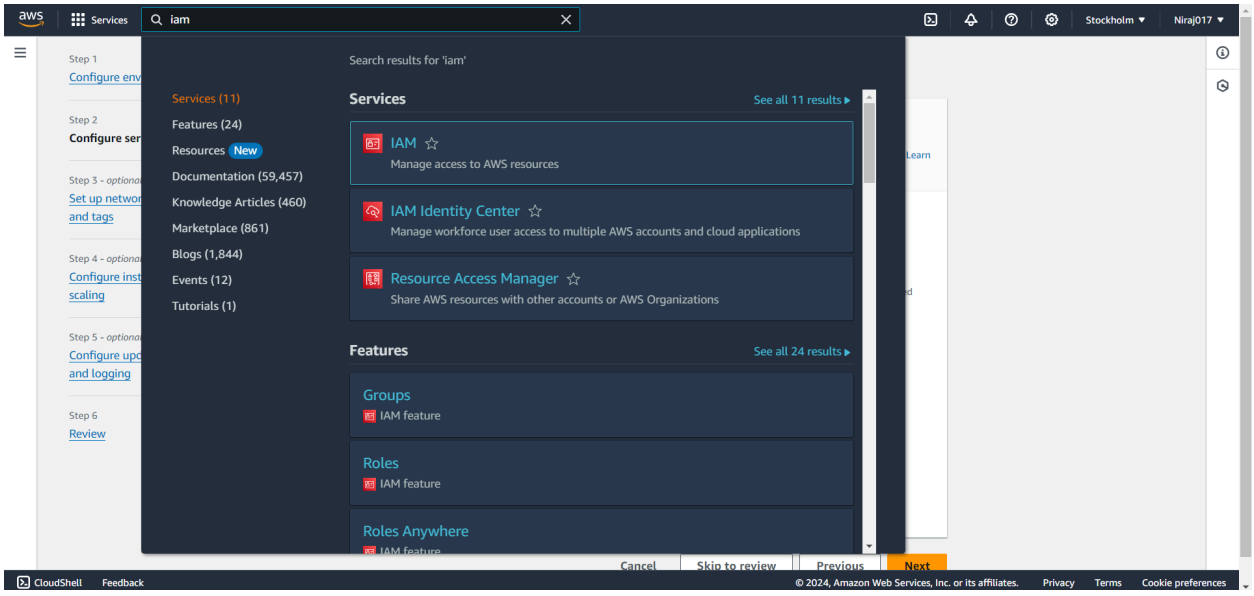
Terms
Cookie preferences


aws
Services
iam
Stockholm
Niraj017
Search results for 'iam'
Services (11)
Features (24)
Resources New
Documentation (59,457)
Knowledge Articles (460)
Marketplace (861)
Blogs (1,844)
Events (12)
Tutorials (1)
Services
See all 11 results
IAM
Manage access to AWS resources
IAM Identity Center
Manage workforce user access to multiple AWS accounts and cloud applications
Resource Access Manager
Share AWS resources with other accounts or AWS Organizations
Features
See all 24 results
Groups
IAM feature
Roles
IAM feature
Roles Anywhere
Step 1
Configure env
Step 2
Configure ser
Step 3 - optiona
Set up networ
and tags
Step 4 - optiona
Configure inst
scaling
Step 5 - optiona
Configure upd
and logging
Step 6
Review
Learn
Cancel
Skip to review
Previous
Next
CloudShell
Feedback
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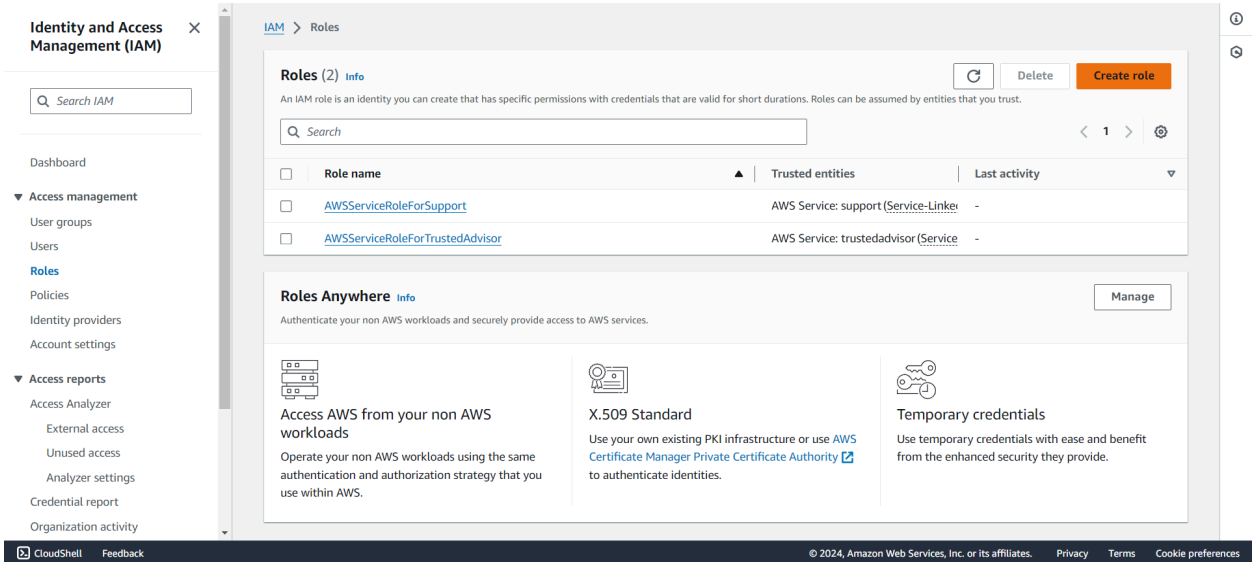
Terms
Cookie preferences


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
Credential report
Organization activity
IAM > Roles
Roles (2) 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
AWSServiceRoleForSupport
AWS Service: support (Service-Linke
AWSServiceRoleForTrustedAdvisor
AWS Service: trustedadvisor (Service
Roles Anywhere Info
Authenticate your non AWS workloads and securely provide access to AWS services.
Manage
Access AWS from your non AWS workloads
Operate your non AWS workloads using the same authentication and authorization strategy that you use within AWS.
X.509 Standard
Use your own existing PKI infrastructure or use AWS Certificate Manager Private Certificate Authority to authenticate identities.
Temporary credentials
Use temporary credentials with ease and benefit from the enhanced security they provide.
CloudShell
Feedback
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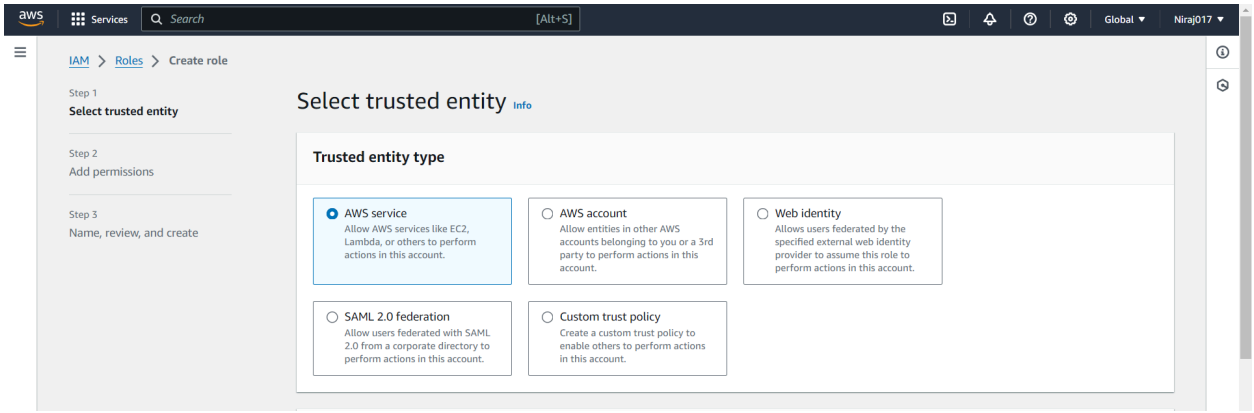
Terms
Cookie preferences


aws
Services
Search
[Alt+S]
Global
Niraj017
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

EC2

Choose a use case for the specified service.

Use case

- **EC2**
  Allows EC2 instances to call AWS services on your behalf.
- **EC2 Role for AWS Systems Manager**
  Allows EC2 instances to call AWS services like CloudWatch and Systems Manager on your behalf.
- **EC2 Spot Fleet Role**
  Allows EC2 Spot Fleet to request and terminate Spot Instances on your behalf.
- **EC2 - Spot Fleet Auto Scaling**
  Allows Auto Scaling to access and update EC2 spot fleets on your behalf.
- **EC2 - Spot Fleet Tagging**
  Allows EC2 to launch spot instances and attach tags to the launched instances on your behalf.
- **EC2 - Spot Instances**
  Allows EC2 Spot Instances to launch and manage spot instances on your behalf.
- **EC2 - Spot Fleet**
  Allows EC2 Spot Fleet to launch and manage spot fleet instances on your behalf.
- **EC2 - Scheduled Instances**
  Allows EC2 Scheduled Instances to manage instances on your behalf.

Cancel Next

Step 2
Add permissions

Step 3
Name, review, and create

Permissions policies (3/947) Info

Choose one or more policies to attach to your new role.

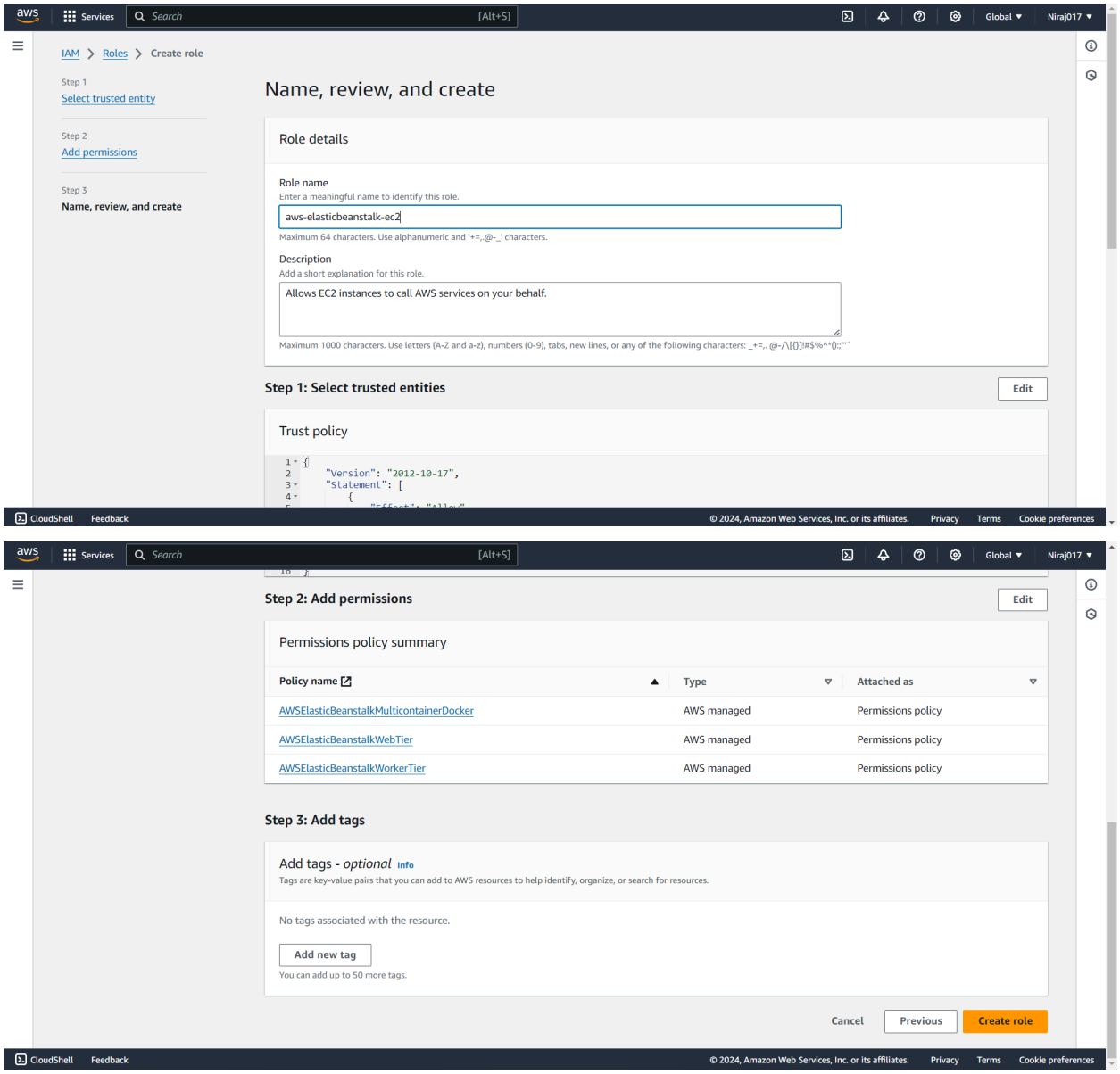
Filter by Type

Bean | All types | 14 matches | 1

Policy name	Type	Description
AWSElasticBeanstalkWebTier	AWS managed	Provide the instances in your web server environment access to upload log files to Amazon S3.
AWSElasticBeanstalkWorkerTier	AWS managed	Provide the instances in your worker environment access to upload log files to Amazon S3, to use Amazon SQS to mon…
AWSElasticBeanstalkMulticontainerDoc…	AWS managed	Provide the instances in your multicontainer Docker environment access to use the Amazon EC2 Container Service to …
AWSElasticBeanstalkEnhancedHealth	AWS managed	AWS Elastic Beanstalk Service policy for Health Monitoring system
AWSElasticBeanstalkCustomPlatformf…	AWS managed	Provide the instance in your custom platform builder environment permission to launch EC2 instance, create EBS snap…
AWSElasticBeanstalkRoleWorkerTier	AWS managed	(Elastic Beanstalk operations role) Allows a worker environment tier to create an Amazon DynamoDB table and an Am…
AWSElasticBeanstalkRoleSNS	AWS managed	(Elastic Beanstalk operations role) Allows an environment to enable Amazon SNS topic integration.
AWSElasticBeanstalkRoleRDS	AWS managed	(Elastic Beanstalk operations role) Allows an environment to integrate an Amazon RDS instance.
AWSElasticBeanstalkRoleECS	AWS managed	(Elastic Beanstalk operations role) Allows a multicontainer Docker environment to manage Amazon ECS clusters.
AWSElasticBeanstalkRoleCore	AWS managed	AWSElasticBeanstalkRoleCore (Elastic Beanstalk operations role) Allows core operation of a web service environment.
AWSElasticBeanstalkRoleCWL	AWS managed	(Elastic Beanstalk operations role) Allows an environment to manage Amazon CloudWatch Logs log groups.
AWSElasticBeanstalkReadOnly	AWS managed	Grants read-only permissions. Explicitly allows operators to gain direct access to retrieve information about resources r…
AdministratorAccess-AWSElasticBeanst…	AWS managed	Grants account administrative permissions. Explicitly allows developers and administrators to gain direct access to reso…
AWSElasticBeanstalkManagedUpdates…	AWS managed	This policy is for the AWS Elastic Beanstalk service role used to perform managed updates of Elastic Beanstalk environ…

▸ **Set permissions boundary - *optional***

Cancel Previous Next


aws
Services
Search
[Alt+S]
Global
Niraj017
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.
aws-elasticbeanstalk-ec2
Maximum 64 characters. Use alphanumeric and '+=,.@-_' characters.
Description
Add a short explanation for this role.
Allows EC2 instances 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": [
{
CloudShell
Feedback
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Terms
Cookie preferences

aws
Services
Search
[Alt+S]
Global
Niraj017
Step 2: Add permissions
Edit
Permissions policy summary
Policy name
Type
Attached as
AWSElasticBeanstalkMulticontainerDocker
AWS managed
Permissions policy
AWSElasticBeanstalkWebTier
AWS managed
Permissions policy
AWSElasticBeanstalkWorkerTier
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
Feedback
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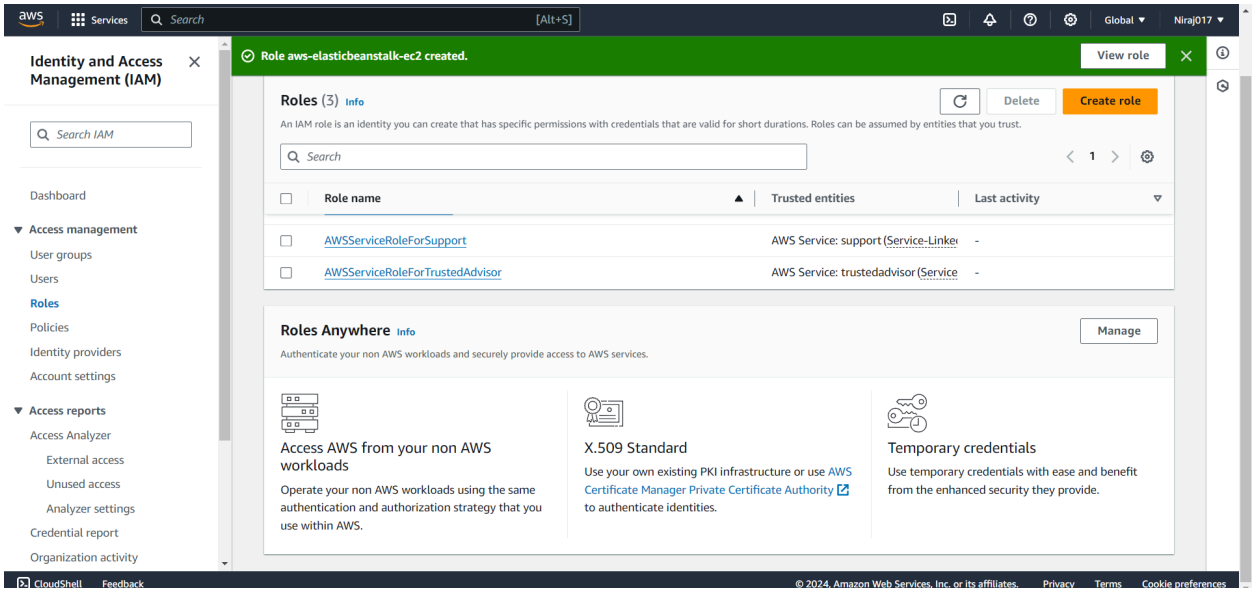
Services
Search
[Alt+S]
Global
Niraj017
Identity and Access Management (IAM)
Search IAM
Dashboard
Access management
User groups
Users
Roles
Policies
Identity providers
Account settings
Access reports
Access Analyzer
External access
Unused access
Analyzer settings
Credential report
Organization activity
Role aws-elasticbeanstalk-ec2 created.
View role
Roles (3) 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
AWSServiceRoleForSupport
AWS Service: support (Service-Linke
AWSServiceRoleForTrustedAdvisor
AWS Service: trustedadvisor (Service
Roles Anywhere Info
Authenticate your non AWS workloads and securely provide access to AWS services.
Manage
Access AWS from your non AWS workloads
Operate your non AWS workloads using the same authentication and authorization strategy that you use within AWS.
X.509 Standard
Use your own existing PKI infrastructure or use AWS Certificate Manager Private Certificate Authority to authenticate identities.
Temporary credentials
Use temporary credentials with ease and benefit from the enhanced security they provide.
CloudShell
Feedback
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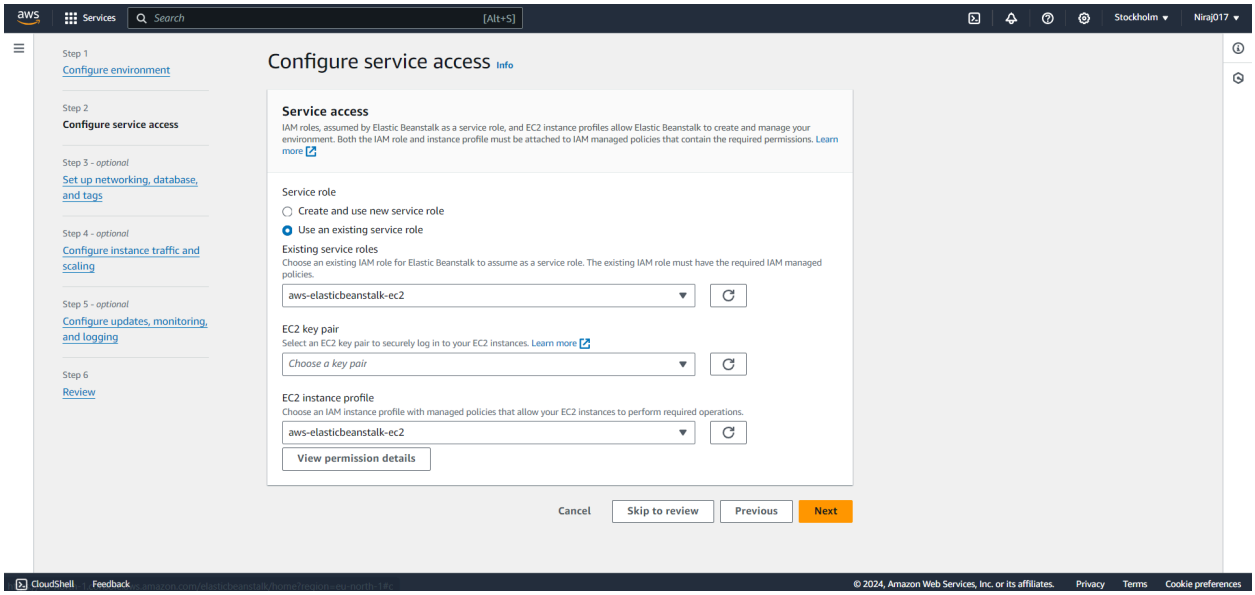
Terms
Cookie preferences


Services
Search
[Alt+S]
Stockholm
Niraj017
Step 1
Configure environment
Step 2
Configure service access
Step 3 - optional
Set up networking, database, and tags
Step 4 - optional
Configure instance traffic and scaling
Step 5 - optional
Configure updates, monitoring, and logging
Step 6
Review
Configure service access Info
Service access
IAM roles, assumed by Elastic Beanstalk as a service role, and EC2 instance profiles allow Elastic Beanstalk to create and manage your environment. Both the IAM role and instance profile must be attached to IAM managed policies that contain the required permissions. Learn more
Service role
Create and use new service role
Use an existing service role
Existing service roles
Choose an existing IAM role for Elastic Beanstalk to assume as a service role. The existing IAM role must have the required IAM managed policies.
aws-elasticbeanstalk-ec2
EC2 key pair
Select an EC2 key pair to securely log in to your EC2 instances. Learn more
Choose a key pair
EC2 instance profile
Choose an IAM instance profile with managed policies that allow your EC2 instances to perform required operations.
aws-elasticbeanstalk-ec2
View permission details
Cancel
Skip to review
Previous
Next
CloudShell
Feedback
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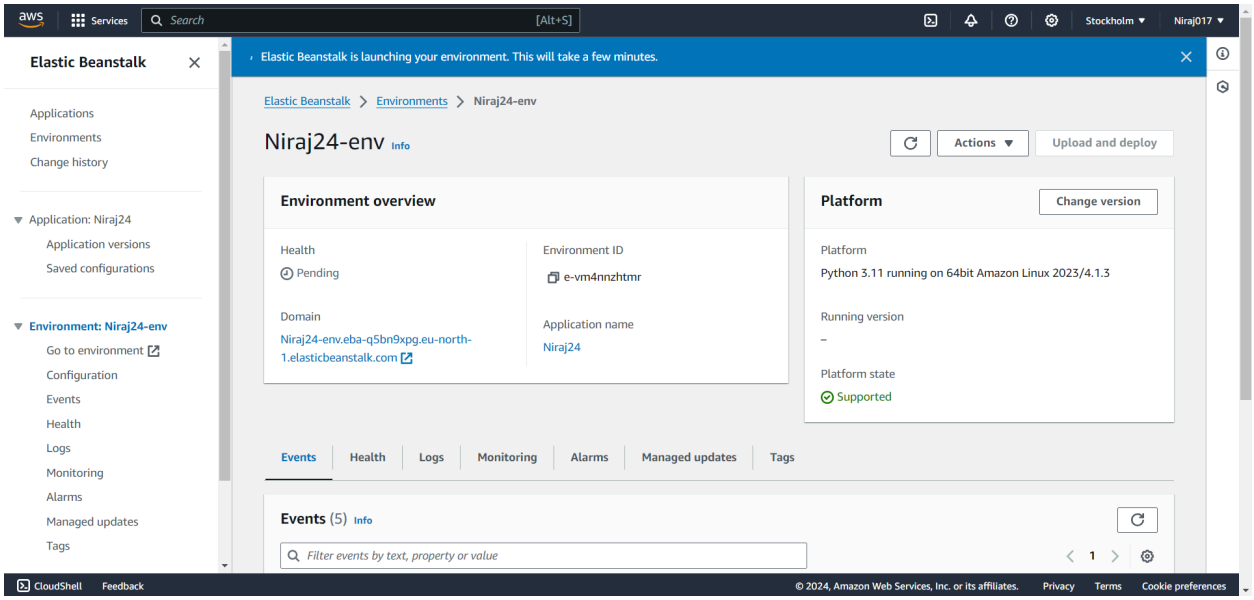
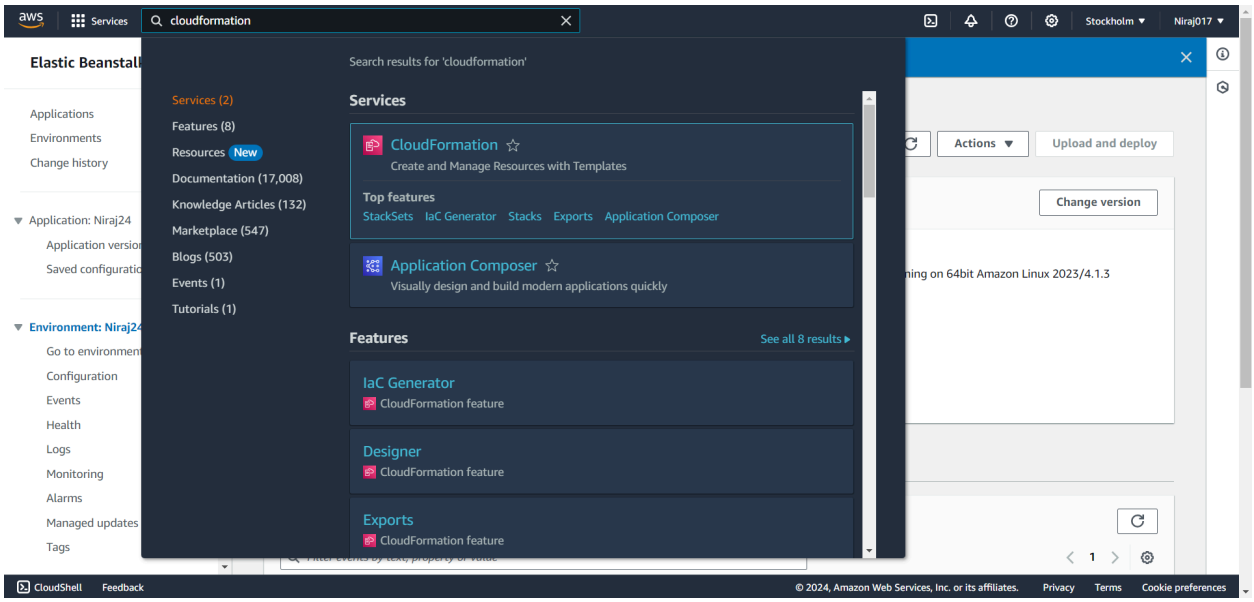
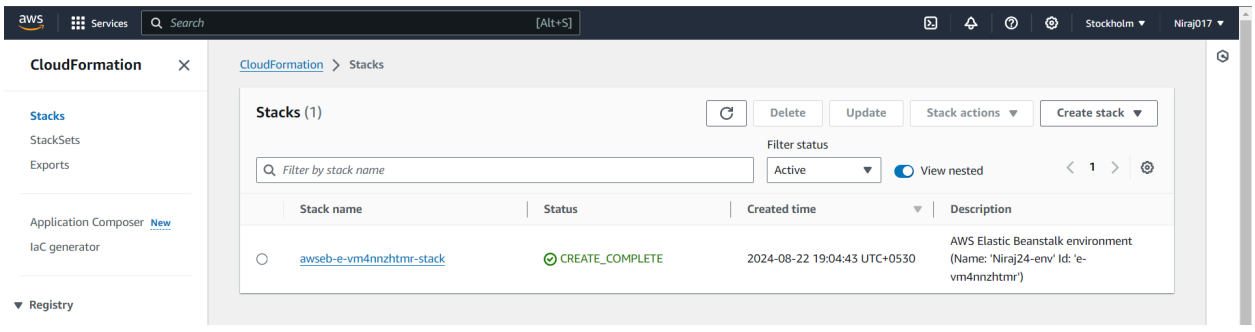
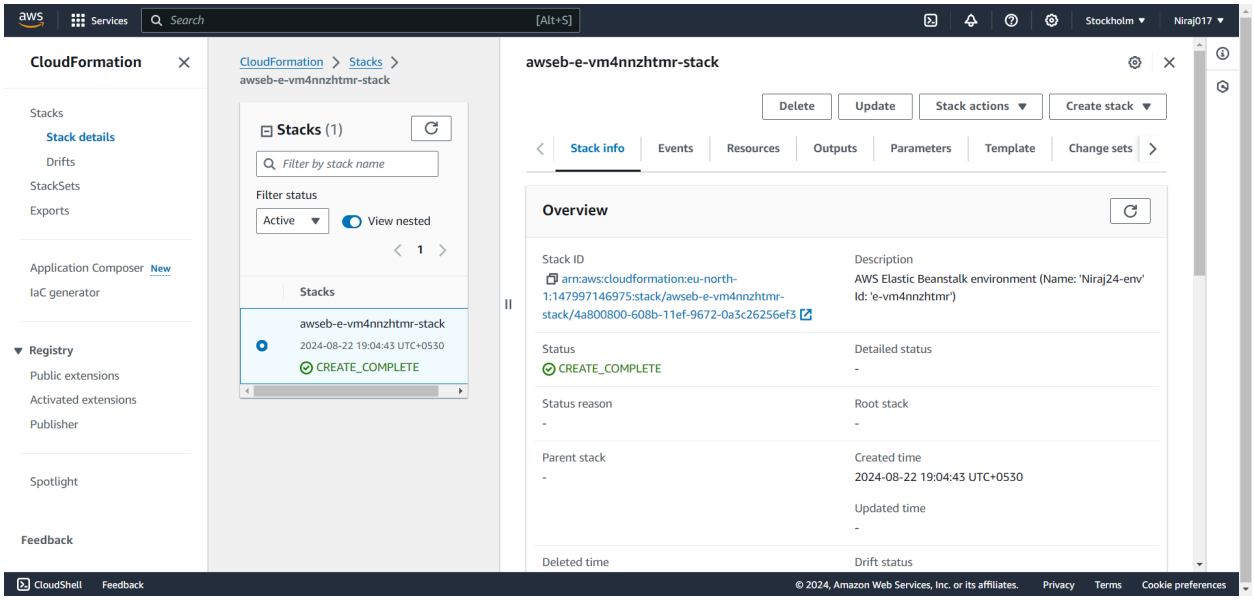
Terms
Cookie preferences


Elastic Beanstalk
Elastic Beanstalk is launching your environment. This will take a few minutes.
Elastic Beanstalk > Environments > Niraj24-env
Niraj24-env Info
Actions
Upload and deploy
Environment overview
Health
Pending
Environment ID
e-vm4nnzhtmr
Domain
Niraj24-env.eba-q5bn9xpg.eu-north-1.elasticbeanstalk.com
Application name
Niraj24
Platform
Change version
Platform
Python 3.11 running on 64bit Amazon Linux 2023/4.1.3
Running version
Platform state
Supported
Events
Health
Logs
Monitoring
Alarms
Managed updates
Tags
Events (5) Info
Filter events by text, property or value


cloudformation
Search results for 'cloudformation'
Services (2)
Features (8)
Resources New
Documentation (17,008)
Knowledge Articles (132)
Marketplace (547)
Blogs (503)
Events (1)
Tutorials (1)
Services
CloudFormation
Create and Manage Resources with Templates
Top features
StackSets
IaC Generator
Stacks
Exports
Application Composer
Visually design and build modern applications quickly
Features
See all 8 results
IaC Generator
CloudFormation feature
Designer
CloudFormation feature
Exports
CloudFormation feature


CloudFormation
Stacks
StackSets
Exports
Application Composer New
IaC generator
Registry
CloudFormation > Stacks
Stacks (1)
Delete
Update
Stack actions
Create stack
Filter by stack name
Filter status
Active
View nested
Stack name
Status
Created time
Description
awseb-e-vm4nnzhtmr-stack
CREATE_COMPLETE
2024-08-22 19:04:43 UTC+0530
AWS Elastic Beanstalk environment (Name: 'Niraj24-env' Id: 'e-vm4nnzhtmr')


CloudFormation
Stacks
Stack details
Drifts
StackSets
Exports
Application Composer New
IaC generator
Registry
Public extensions
Activated extensions
Publisher
Spotlight
Feedback
CloudFormation > Stacks >
awseb-e-vm4nnzhtmr-stack
Stacks (1)
Filter by stack name
Filter status
Active
View nested
awseb-e-vm4nnzhtmr-stack
2024-08-22 19:04:43 UTC+0530
CREATE_COMPLETE
awseb-e-vm4nnzhtmr-stack
Delete
Update
Stack actions
Create stack
Stack info
Events
Resources
Outputs
Parameters
Template
Change sets
Overview
Stack ID
arn:aws:cloudformation:eu-north-1:147997146975:stack/awseb-e-vm4nnzhtmr-stack/4a800800-608b-11ef-9672-0a3c26256ef3
Description
AWS Elastic Beanstalk environment (Name: 'Niraj24-env' Id: 'e-vm4nnzhtmr')
Status
CREATE_COMPLETE
Detailed status
Status reason
Root stack
Parent stack
Created time
2024-08-22 19:04:43 UTC+0530
Updated time
Deleted time
Drift status
CloudShell
Feedback
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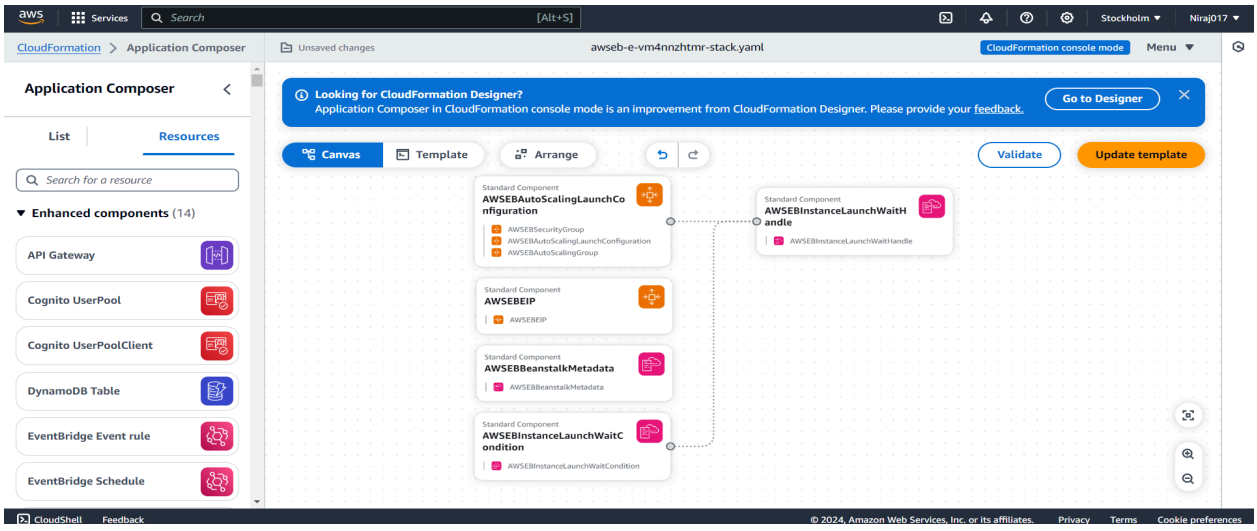
CloudFormation > Application Composer
Unsaved changes
awseb-e-vm4nnzhtmr-stack.yaml
CloudFormation console mode
Menu
Application Composer
List
Resources
Search for a resource
Enhanced components (14)
API Gateway
Cognito UserPool
Cognito UserPoolClient
DynamoDB Table
EventBridge Event rule
EventBridge Schedule
Looking for CloudFormation Designer?
Application Composer in CloudFormation console mode is an improvement from CloudFormation Designer. Please provide your feedback.
Go to Designer
Canvas
Template
Arrange
Validate
Update template
Standard Component
AWSEBAutoScalingLaunchConfiguration
AWSEBSecurityGroup
AWSEBAutoScalingLaunchConfiguration
AWSEBAutoScalingGroup
Standard Component
AWSEBInstanceLaunchWaitHandle
AWSEBInstanceLaunchWaitHandle
Standard Component
AWSEBEIP
AWSEBEIP
Standard Component
AWSEBBeanstalkMetadata
AWSEBBeanstalkMetadata
Standard Component
AWSEBInstanceLaunchWaitCondition
AWSEBInstanceLaunchWaitCondition
CloudShell
Feedback
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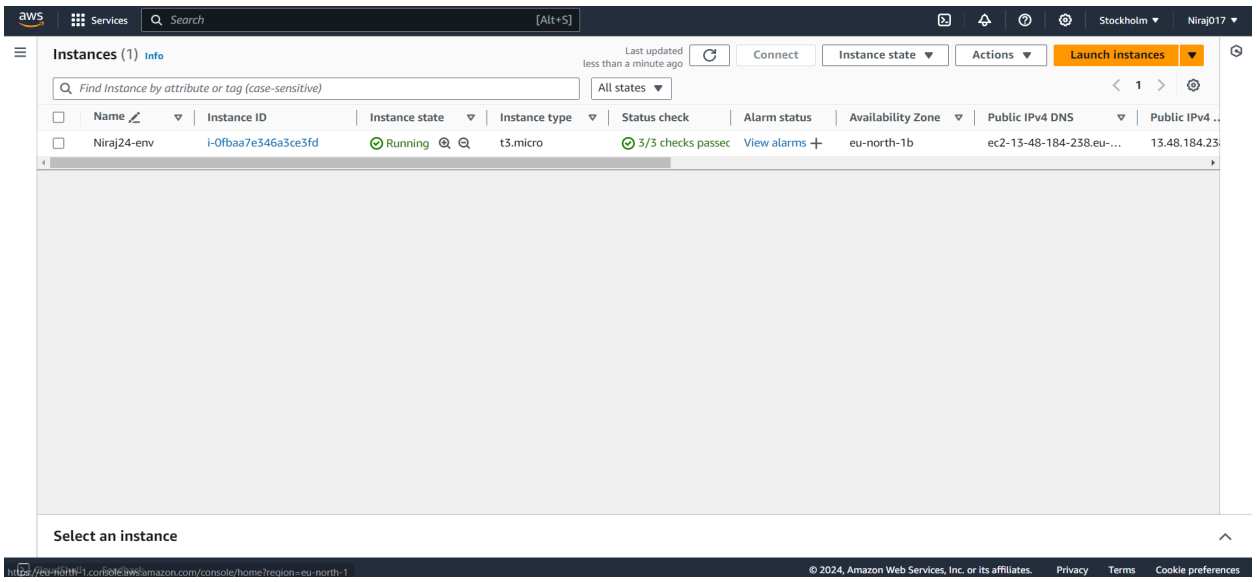
Instances (1) Info
Last updated less than a minute ago
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Public IPv4 ..
Niraj24-env
i-0fbaa7e346a3ce3fd
Running
t3.micro
3/3 checks passed
View alarms
eu-north-1b
ec2-13-48-184-238.eu-...
13.48.184.23
Select an instance
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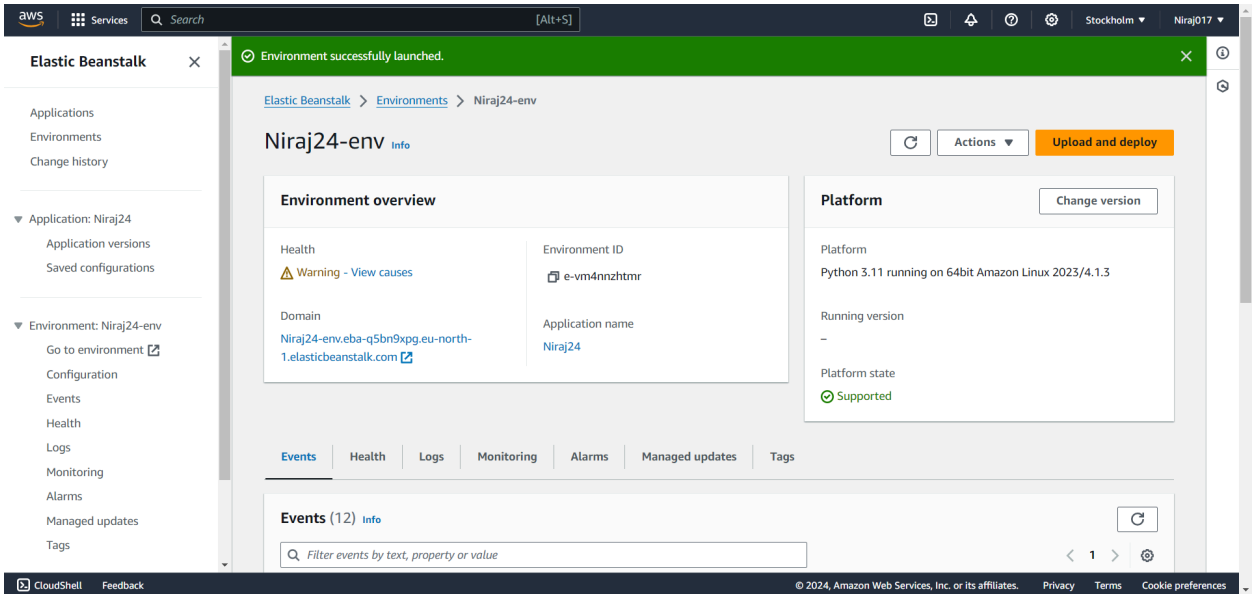
Terms
Cookie preferences


aws
Services
Search
[Alt+S]
Stockholm
Niraj017
Elastic Beanstalk
Applications
Environments
Change history
Application: Niraj24
Application versions
Saved configurations
Environment: Niraj24-env
Go to environment
Configuration
Events
Health
Logs
Monitoring
Alarms
Managed updates
Tags
Environment successfully launched.
Elastic Beanstalk > Environments > Niraj24-env
Niraj24-env Info
Actions
Upload and deploy
Environment overview
Health
Warning - View causes
Environment ID
e-vm4nnzhtmr
Domain
Niraj24-env.eba-q5bn9xpg.eu-north-1.elasticbeanstalk.com
Application name
Niraj24
Platform
Change version
Platform
Python 3.11 running on 64bit Amazon Linux 2023/4.1.3
Running version
-
Platform state
Supported
Events
Health
Logs
Monitoring
Alarms
Managed updates
Tags
Events (12) Info
Filter events by text, property or value
1
CloudShell
Feedback
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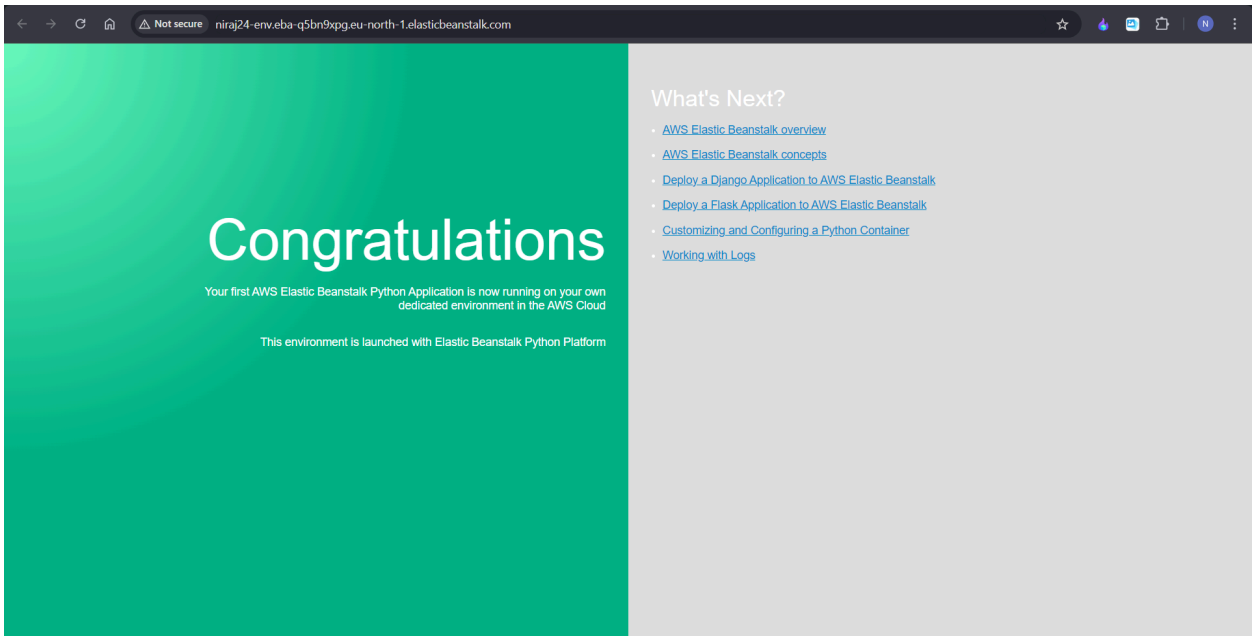
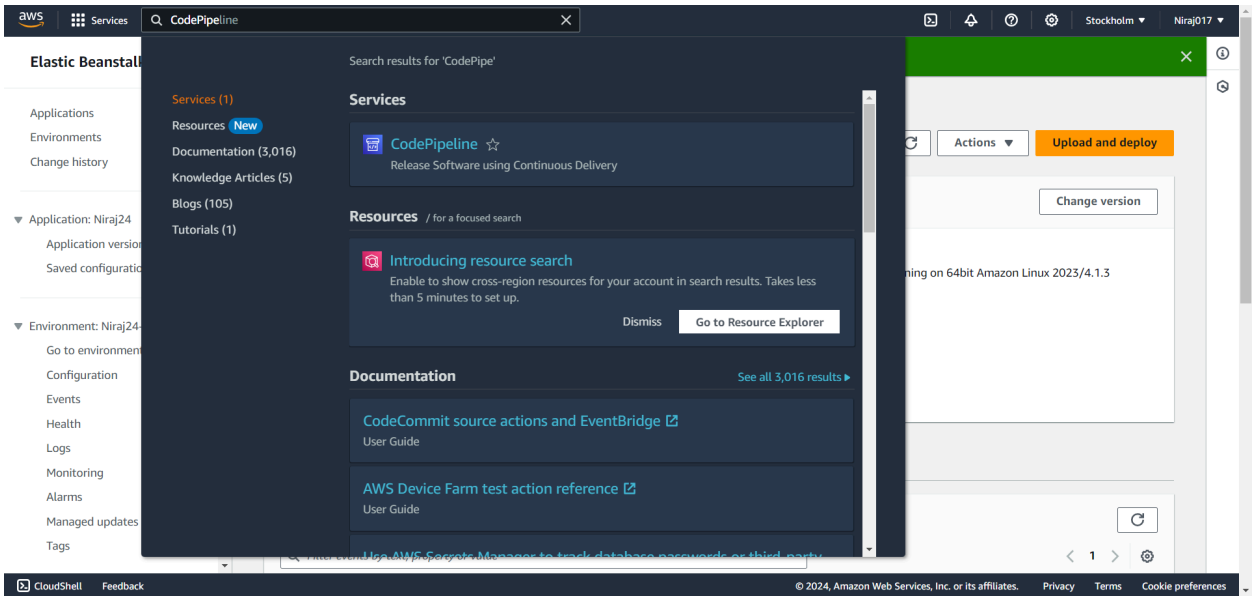
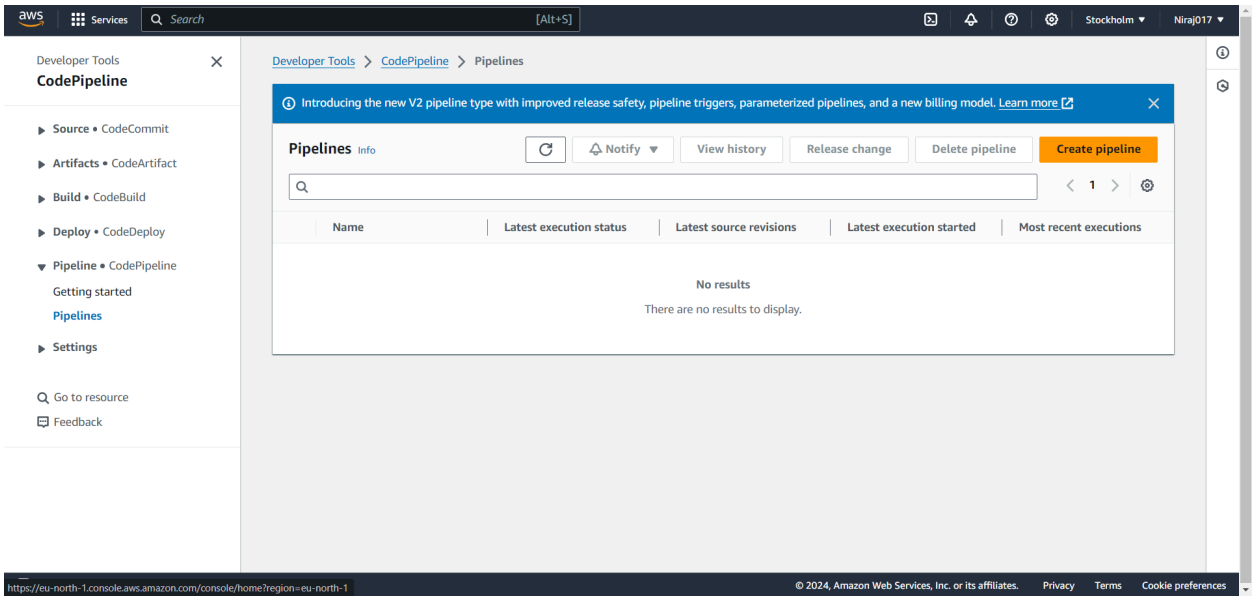
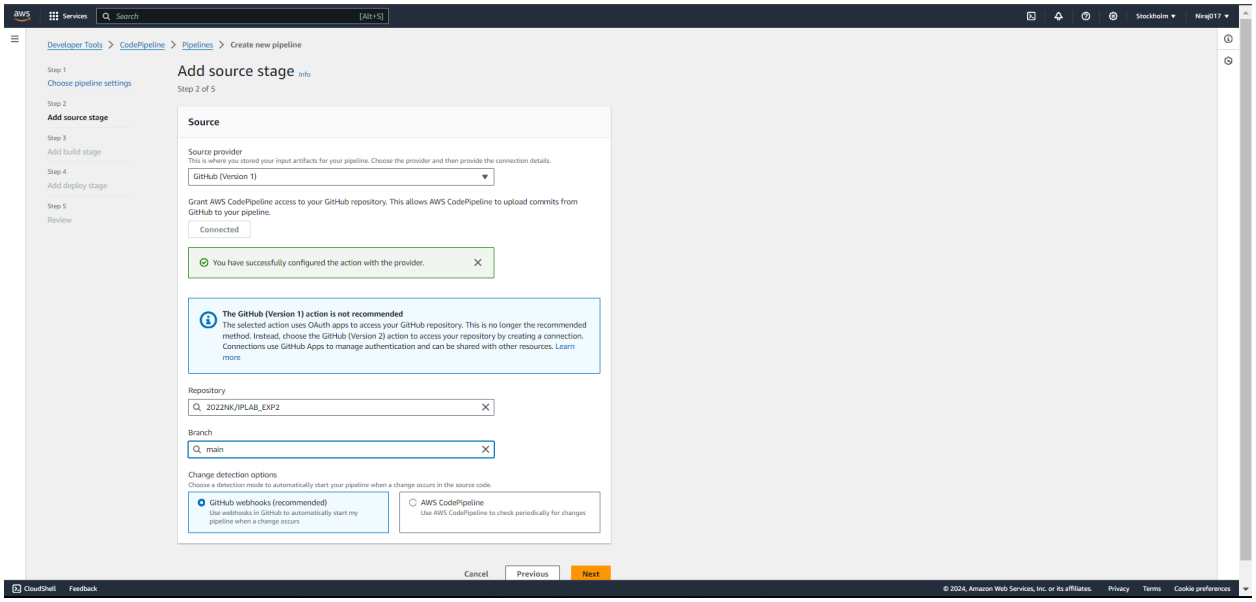
Terms
Cookie preferences


Not secure
niraj24-env.eba-q5bn9xpg.eu-north-1.elasticbeanstalk.com
Congratulations
Your first AWS Elastic Beanstalk Python Application is now running on your own dedicated environment in the AWS Cloud
This environment is launched with Elastic Beanstalk Python Platform
What's Next?
AWS Elastic Beanstalk overview
AWS Elastic Beanstalk concepts
Deploy a Django Application to AWS Elastic Beanstalk
Deploy a Flask Application to AWS Elastic Beanstalk
Customizing and Configuring a Python Container
Working with Logs

Code Deployment using CodePipeline:






Developer Tools > CodePipeline > Pipelines > Create new pipeline
Step 1
Choose pipeline settings
Step 2
Add source stage
Step 3
Add build stage
Step 4
Add deploy stage
Step 5
Review
Add source stage Info
Step 2 of 5
Source
Source provider
This is where you stored your input artifacts for your pipeline. Choose the provider and then provide the connection details.
GitHub (Version 1)
Grant AWS CodePipeline access to your GitHub repository. This allows AWS CodePipeline to upload commits from GitHub to your pipeline.
Connected
You have successfully configured the action with the provider.
The GitHub (Version 1) action is not recommended
The selected action uses OAuth apps to access your GitHub repository. This is no longer the recommended method. Instead, choose the GitHub (Version 2) action to access your repository by creating a connection. Connections use GitHub Apps to manage authentication and can be shared with other resources. Learn more
Repository
2022NK/IPLAB_EXP2
Branch
main
Change detection options
Choose a detection mode to automatically start your pipeline when a change occurs in the source code.
GitHub webhooks (recommended)
Use webhooks in GitHub to automatically start my pipeline when a change occurs
AWS CodePipeline
Use AWS CodePipeline to check periodically for changes
Cancel
Previous
Next
CloudShell
Feedback
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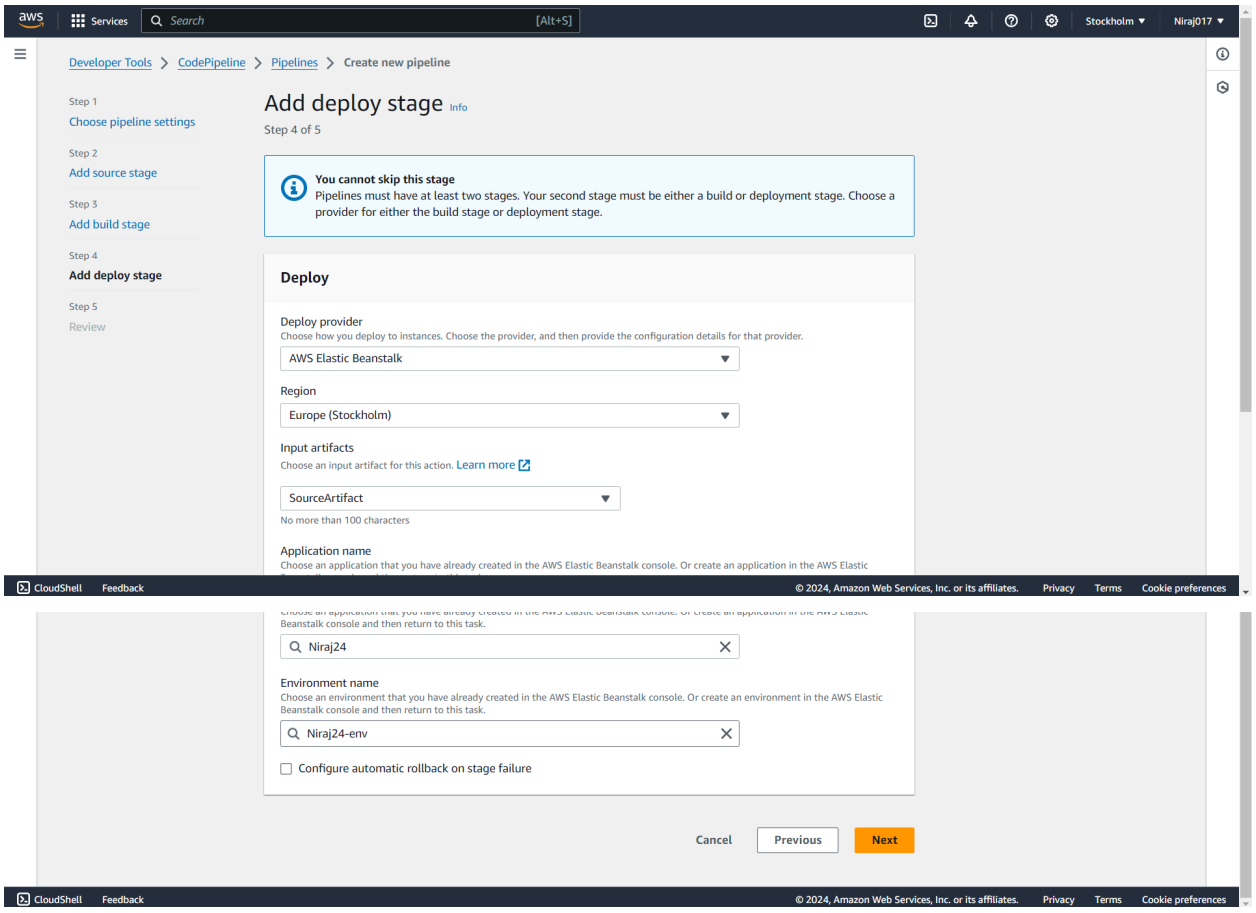
Developer Tools > CodePipeline > Pipelines > Create new pipeline
Step 1
Choose pipeline settings
Step 2
Add source stage
Step 3
Add build stage
Step 4
Add deploy stage
Step 5
Review
Add deploy stage Info
Step 4 of 5
You cannot skip this stage
Pipelines must have at least two stages. Your second stage must be either a build or deployment stage. Choose a provider for either the build stage or deployment stage.
Deploy
Deploy provider
Choose how you deploy to instances. Choose the provider, and then provide the configuration details for that provider.
AWS Elastic Beanstalk
Region
Europe (Stockholm)
Input artifacts
Choose an input artifact for this action. Learn more
SourceArtifact
No more than 100 characters
Application name
Choose an application that you have already created in the AWS Elastic Beanstalk console. Or create an application in the AWS Elastic Beanstalk console and then return to this task.
Niraj24
Environment name
Choose an environment that you have already created in the AWS Elastic Beanstalk console. Or create an environment in the AWS Elastic Beanstalk console and then return to this task.
Niraj24-env
Configure automatic rollback on stage failure
Cancel
Previous
Next
CloudShell
Feedback
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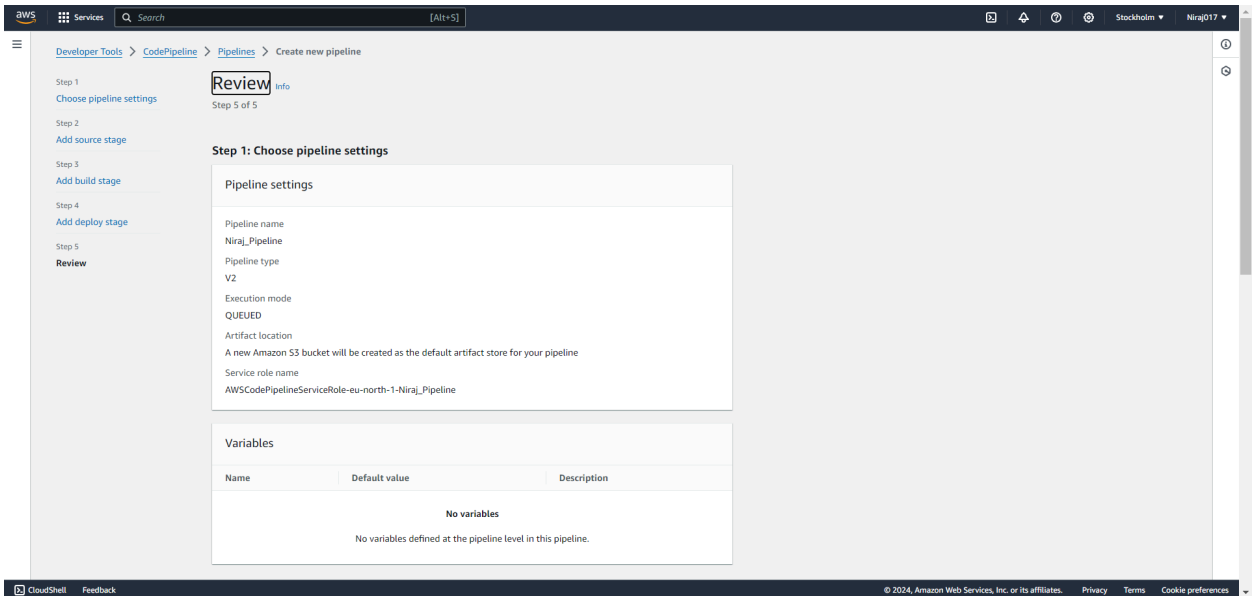
Developer Tools > CodePipeline > Pipelines > Create new pipeline
Step 1
Choose pipeline settings
Step 2
Add source stage
Step 3
Add build stage
Step 4
Add deploy stage
Step 5
Review
Review Info
Step 5 of 5
Step 1: Choose pipeline settings
Pipeline settings
Pipeline name
Niraj_Pipeline
Pipeline type
V2
Execution mode
QUEUED
Artifact location
A new Amazon S3 bucket will be created as the default artifact store for your pipeline
Service role name
AWSCodePipelineServiceRole-eu-north-1-Niraj_Pipeline
Variables
Name
Default value
Description
No variables
No variables defined at the pipeline level in this pipeline.
CloudShell
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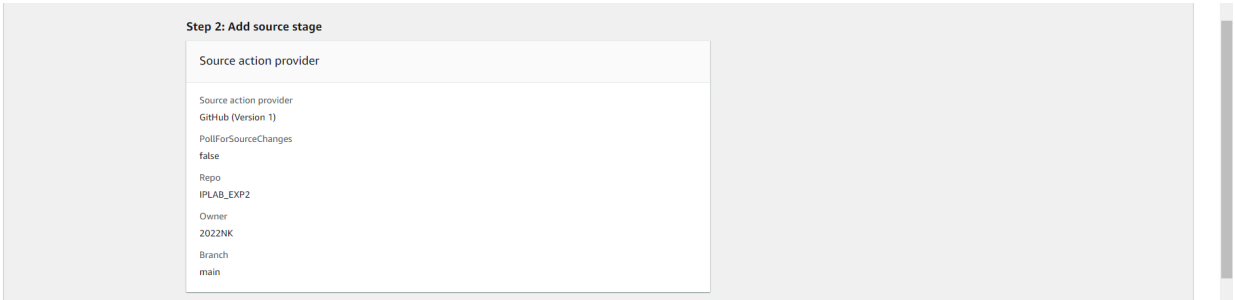
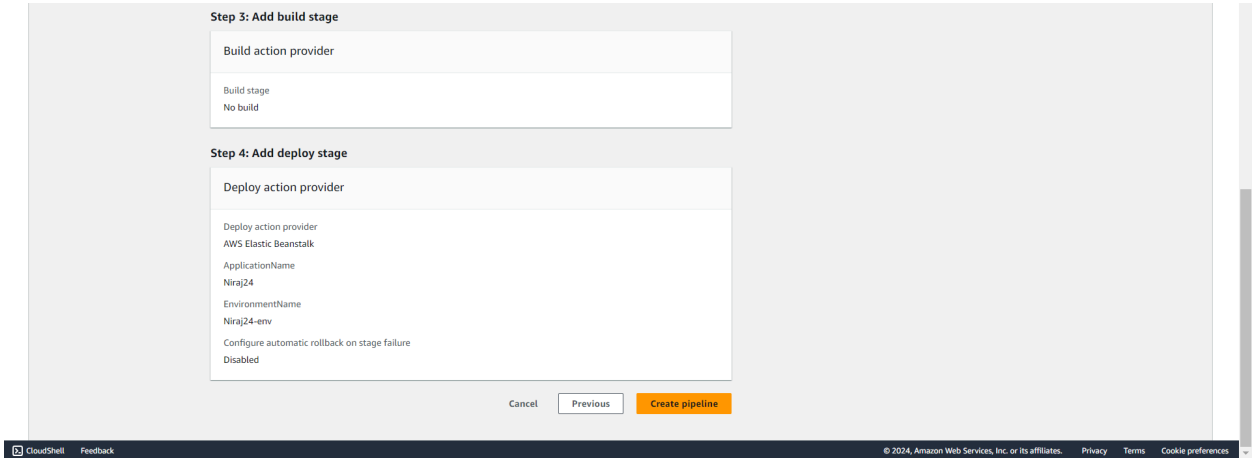

Step 2: Add source stage
Source action provider
Source action provider
GitHub (Version 1)
PollForSourceChanges
false
Repo
IPLAB_EXP2
Owner
2022NK
Branch
main


Step 3: Add build stage
Build action provider
Build stage
No build
Step 4: Add deploy stage
Deploy action provider
Deploy action provider
AWS Elastic Beanstalk
ApplicationName
Niraj24
EnvironmentName
Niraj24-env
Configure automatic rollback on stage failure
Disabled
Cancel
Previous
Create pipeline
CloudShell
Feedback
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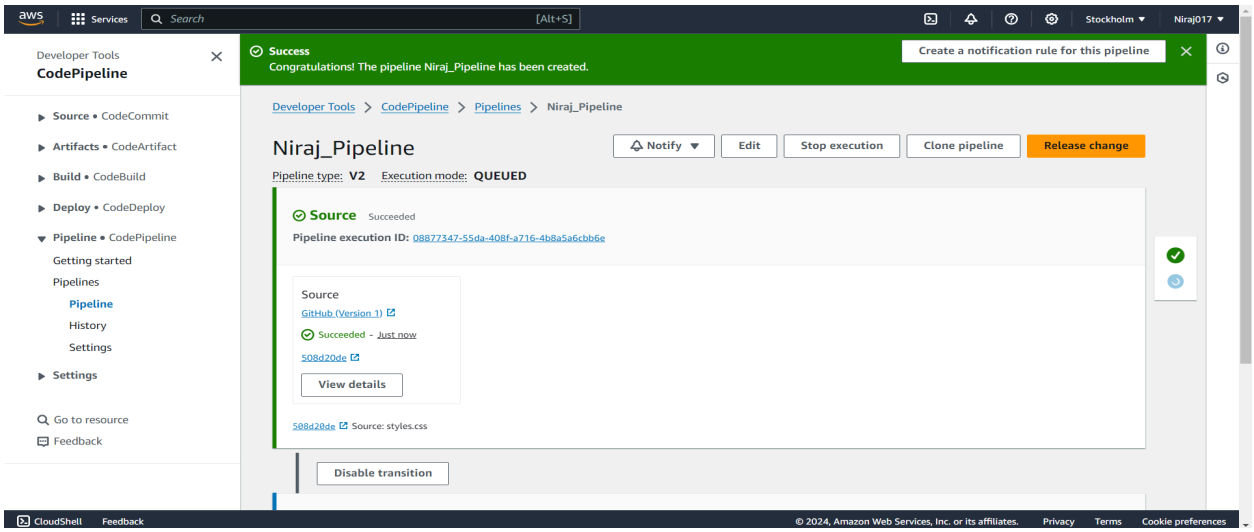
Developer Tools
CodePipeline
Success
Congratulations! The pipeline Niraj_Pipeline has been created.
Create a notification rule for this pipeline
Developer Tools > CodePipeline > Pipelines > Niraj_Pipeline
Niraj_Pipeline
Notify
Edit
Stop execution
Clone pipeline
Release change
Pipeline type: V2
Execution mode: QUEUED
Source
Succeeded
Pipeline execution ID: 08877347-55da-408f-a716-4b8a5a6cbb6e
Source
GitHub (Version 1)
Succeeded - Just now
508d20de
View details
508d20de Source: styles.css
Disable transition
Source • CodeCommit
Artifacts • CodeArtifact
Build • CodeBuild
Deploy • CodeDeploy
Pipeline • CodePipeline
Getting started
Pipelines
Pipeline
History
Settings
Settings
Go to resource
Feedback
CloudShell
Feedback
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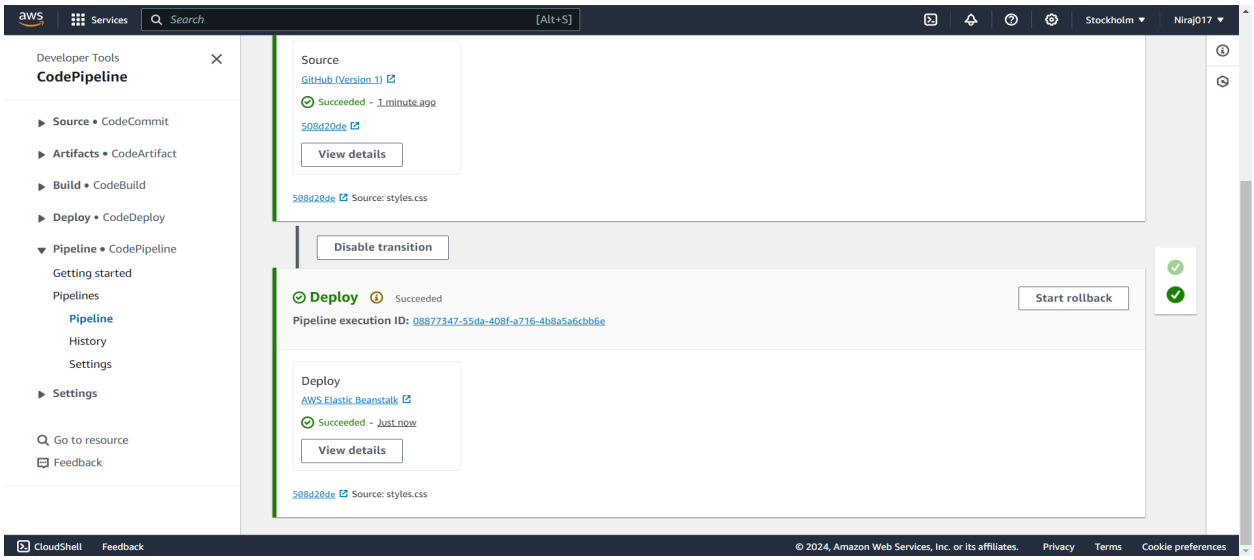
Source
GitHub (Version 1)
Succeeded - 1 minute ago
508d20de
View details
508d20de Source: styles.css
Disable transition
Deploy
Succeeded
Start rollback
Pipeline execution ID: 08877347-55da-408f-a716-4b8a5a6cbb6e
Deploy
AWS Elastic Beanstalk
Succeeded - Just now
View details
508d20de Source: styles.css
CloudShell
Feedback
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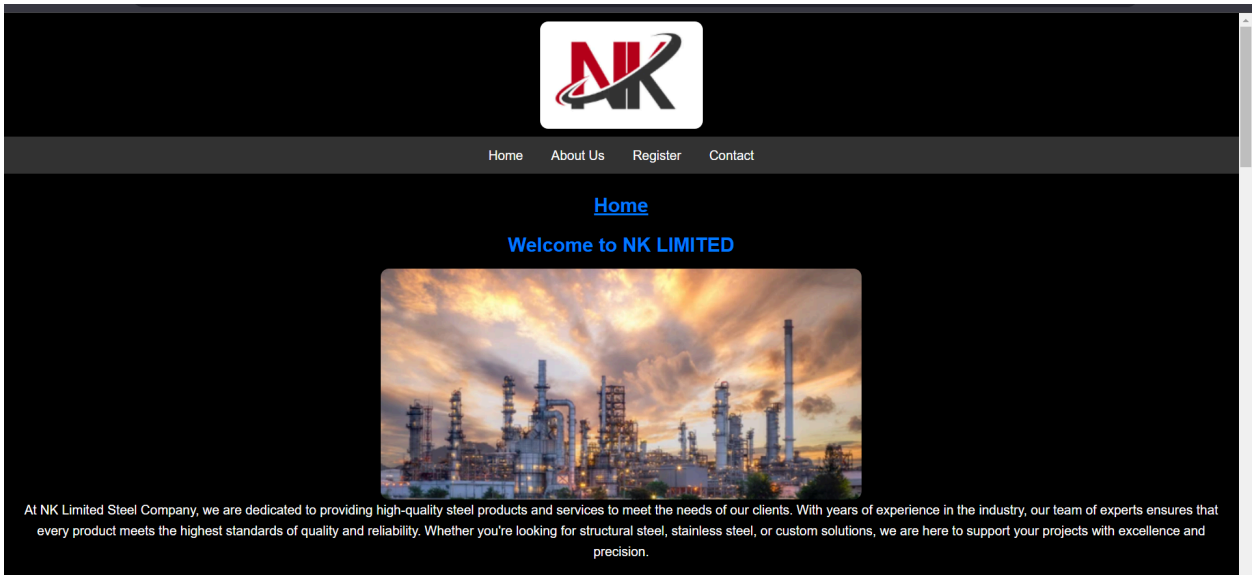
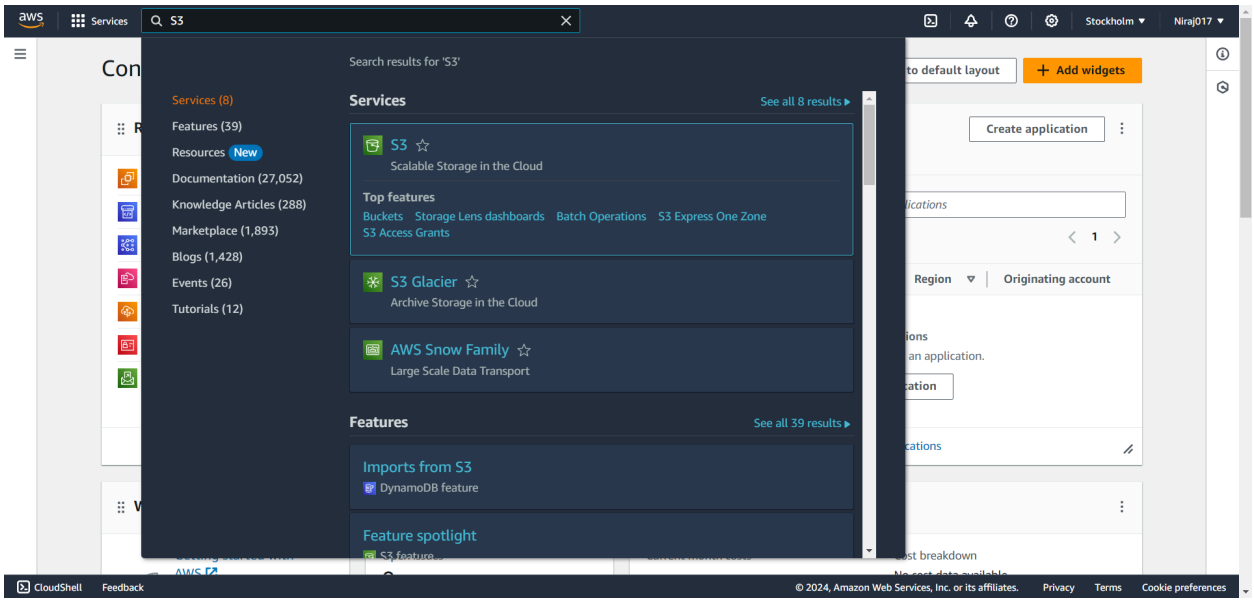
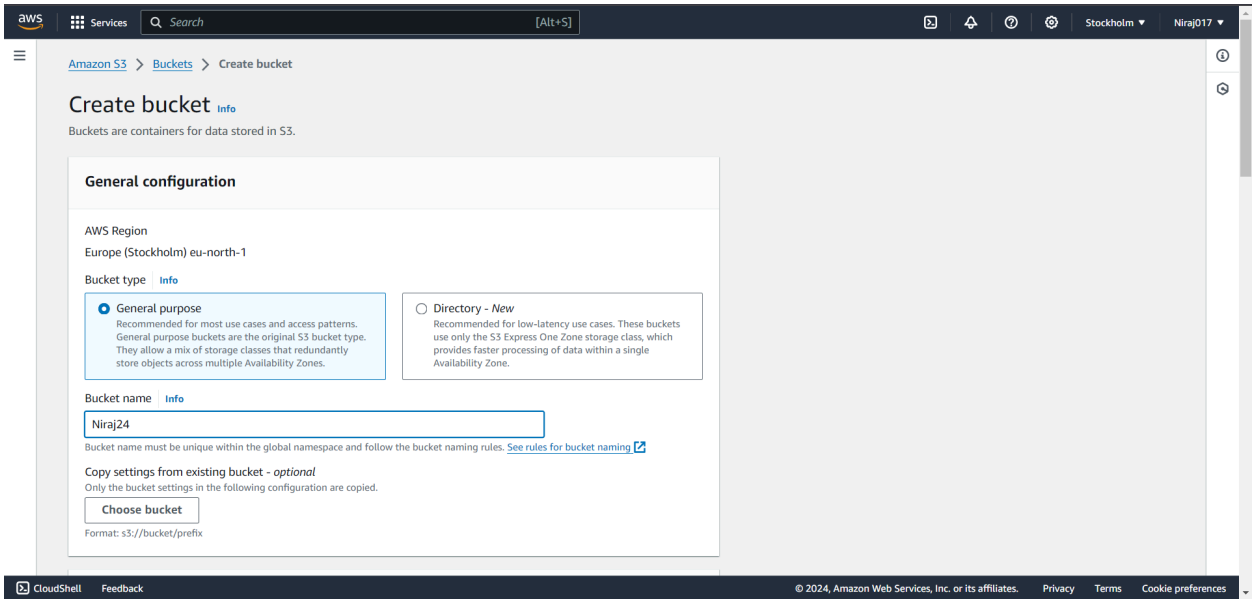
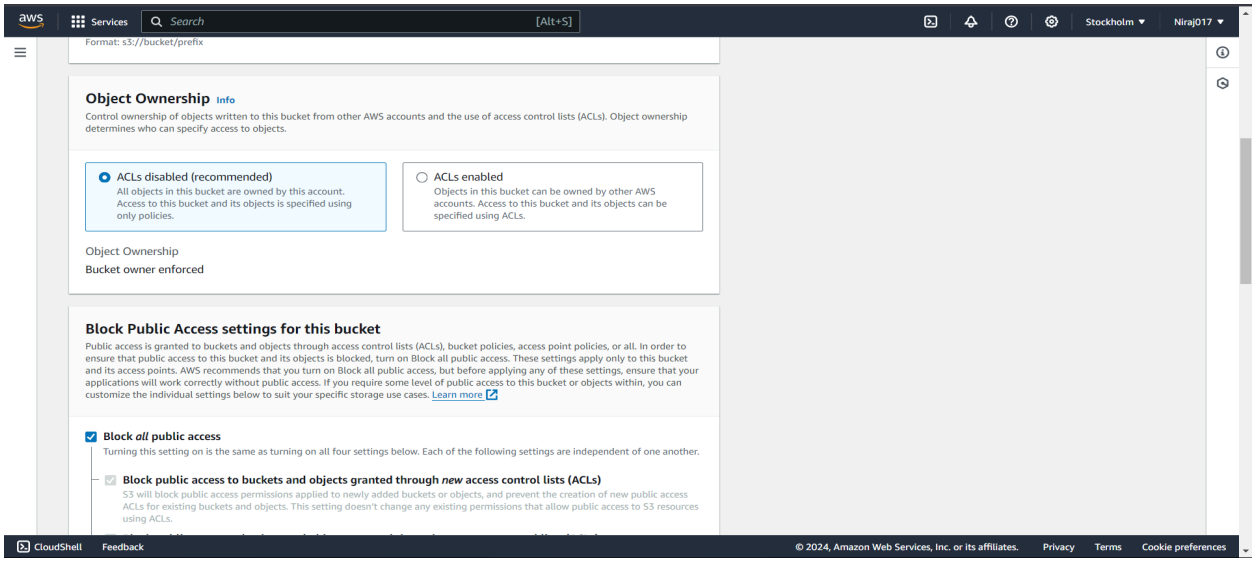

Home
About Us
Register
Contact
Home
Welcome to NK LIMITED
At NK Limited Steel Company, we are dedicated to providing high-quality steel products and services to meet the needs of our clients. With years of experience in the industry, our team of experts ensures that every product meets the highest standards of quality and reliability. Whether you're looking for structural steel, stainless steel, or custom solutions, we are here to support your projects with excellence and precision.

Using S3 Bucket:






Services
Search
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Stockholm
Niraj017
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 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.
CloudShell
Feedback
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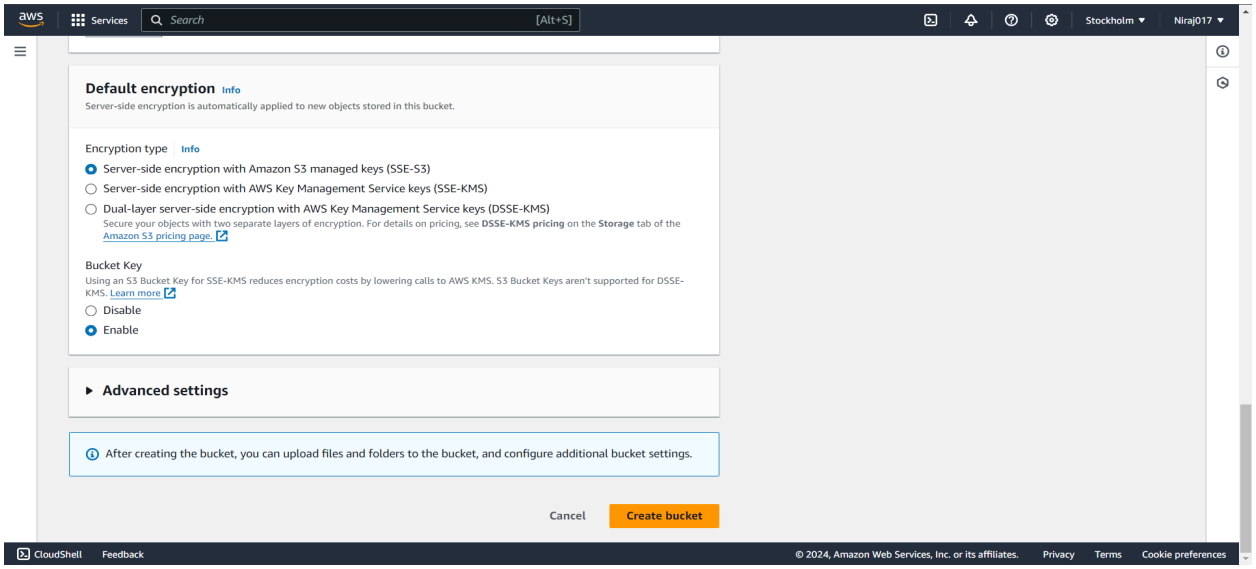
Services
Search
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Stockholm
Niraj017
Default encryption Info
Server-side encryption is automatically applied to new objects stored in this bucket.
Encryption type Info
Server-side encryption with Amazon S3 managed keys (SSE-S3)
Server-side encryption 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
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
CloudShell
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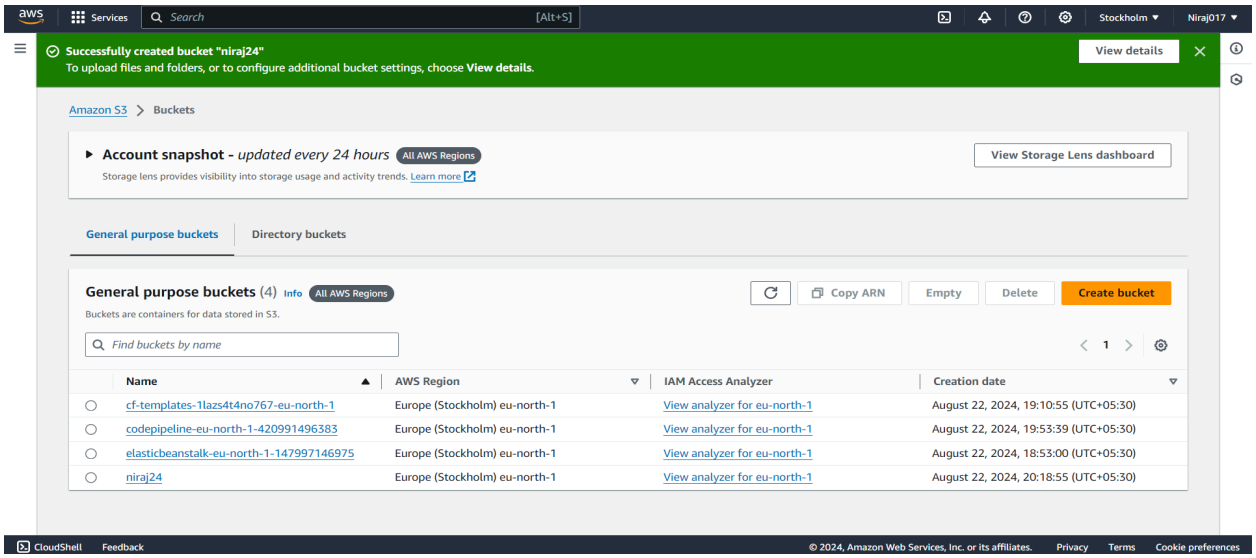
Services
Search
[Alt+S]
Stockholm
Niraj017
Successfully created bucket "niraj24"
To upload files and folders, or to configure additional bucket settings, choose View details.
View details
Amazon S3 > Buckets
Account snapshot - updated every 24 hours
All AWS Regions
Storage lens provides visibility into storage usage and activity trends. Learn more
View Storage Lens dashboard
General purpose buckets
Directory buckets
General purpose buckets (4) 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
cf-templates-1lazs4t4no767-eu-north-1
Europe (Stockholm) eu-north-1
View analyzer for eu-north-1
August 22, 2024, 19:10:55 (UTC+05:30)
codepipeline-eu-north-1-420991496383
Europe (Stockholm) eu-north-1
View analyzer for eu-north-1
August 22, 2024, 19:53:39 (UTC+05:30)
elasticbeanstalk-eu-north-1-147997146975
Europe (Stockholm) eu-north-1
View analyzer for eu-north-1
August 22, 2024, 18:53:00 (UTC+05:30)
niraj24
Europe (Stockholm) eu-north-1
View analyzer for eu-north-1
August 22, 2024, 20:18:55 (UTC+05:30)
CloudShell
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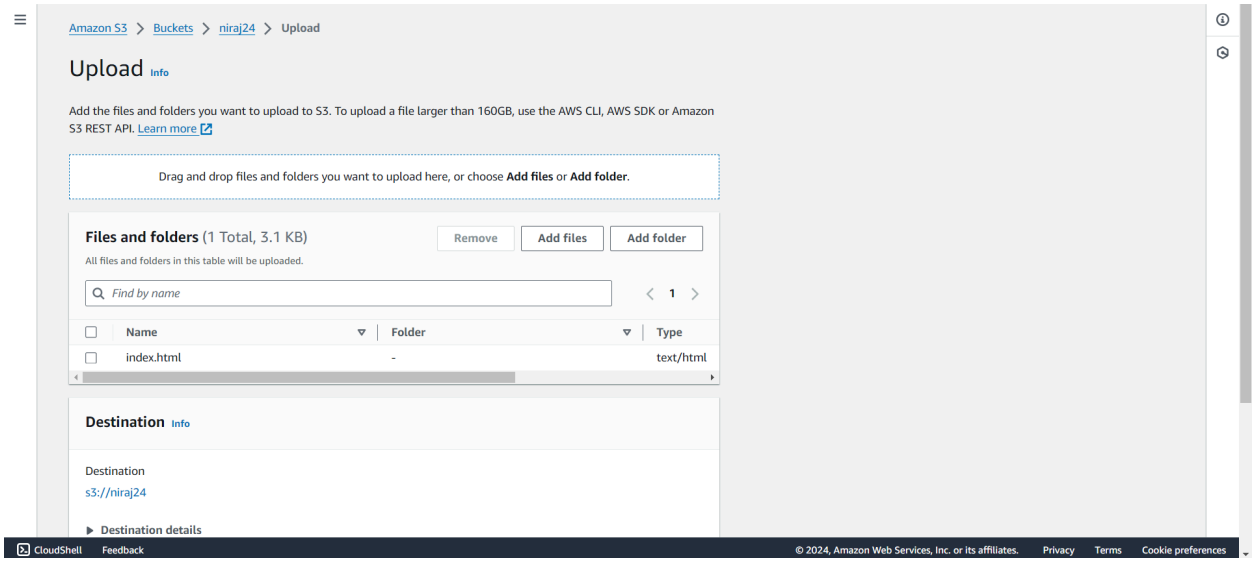
Amazon S3 > Buckets > niraj24 > Upload
Upload Info
Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API. Learn more
Drag and drop files and folders you want to upload here, or choose Add files or Add folder.
Files and folders (1 Total, 3.1 KB)
Remove
Add files
Add folder
All files and folders in this table will be uploaded.
Find by name
Name
Folder
Type
index.html
-
text/html
Destination Info
Destination
s3://niraj24
Destination details
CloudShell
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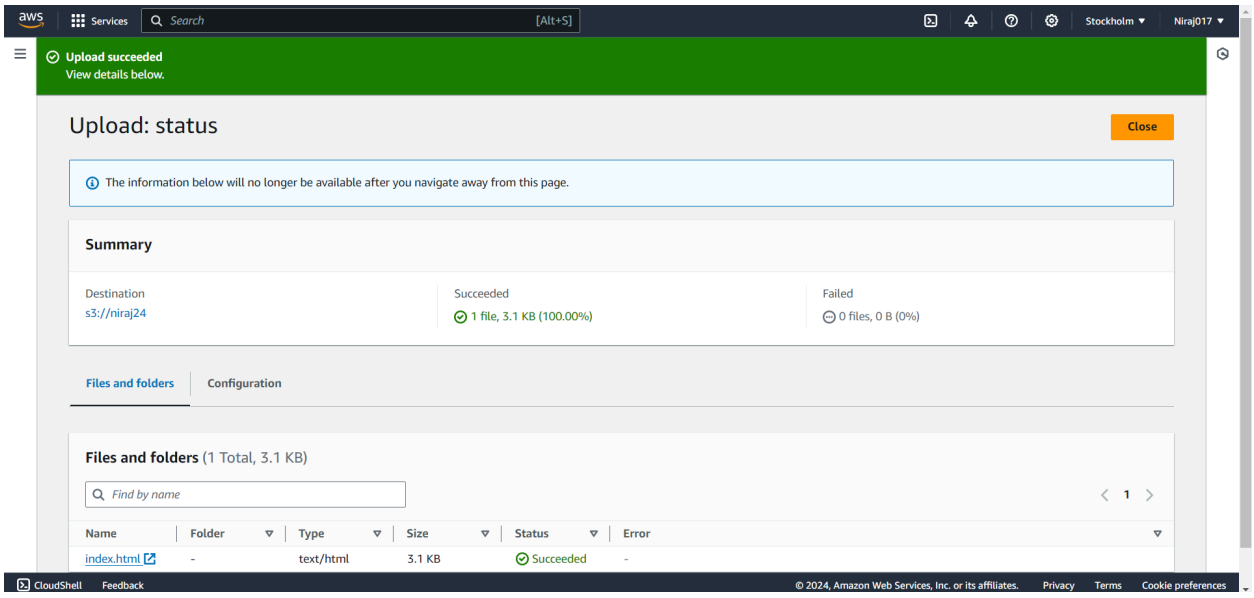
aws
Services
Search
[Alt+S]
Stockholm
Niraj017
Upload succeeded
View details below.
Upload: status
Close
The information below will no longer be available after you navigate away from this page.
Summary
Destination
s3://niraj24
Succeeded
1 file, 3.1 KB (100.00%)
Failed
0 files, 0 B (0%)
Files and folders
Configuration
Files and folders (1 Total, 3.1 KB)
Find by name
Name
Folder
Type
Size
Status
Error
index.html
-
text/html
3.1 KB
Succeeded
-
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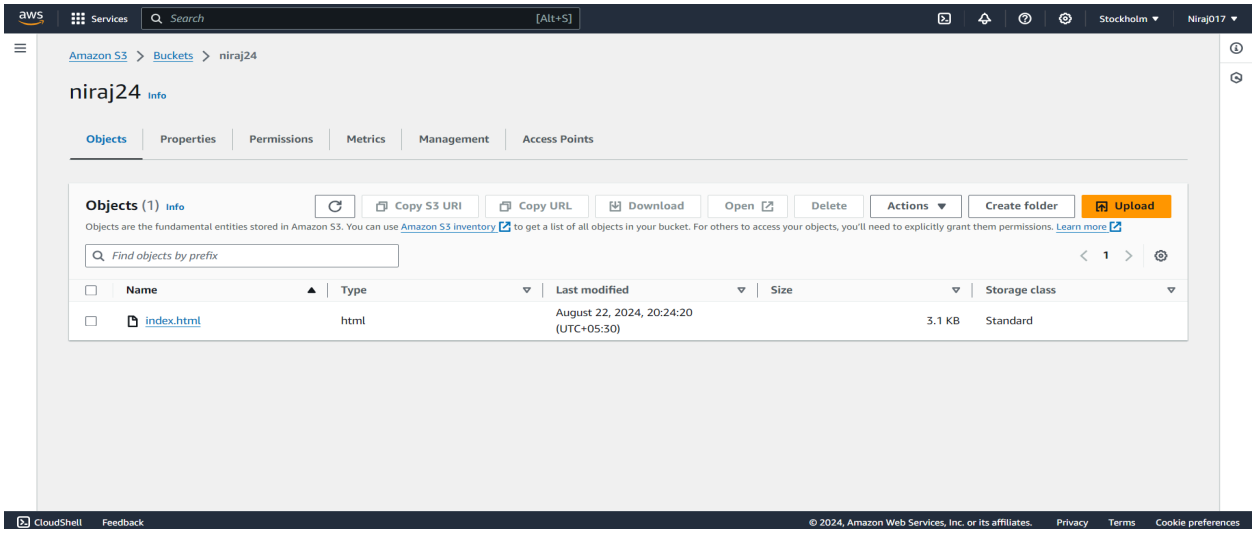
aws
Services
Search
[Alt+S]
Stockholm
Niraj017
Amazon S3 > Buckets > niraj24
niraj24 Info
Objects
Properties
Permissions
Metrics
Management
Access Points
Objects (1) Info
Copy S3 URI
Copy URL
Download
Open
Delete
Actions
Create folder
Upload
Objects are the fundamental entities stored in Amazon S3. You 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
index.html
html
August 22, 2024, 20:24:20 (UTC+05:30)
3.1 KB
Standard
CloudShell
Feedback
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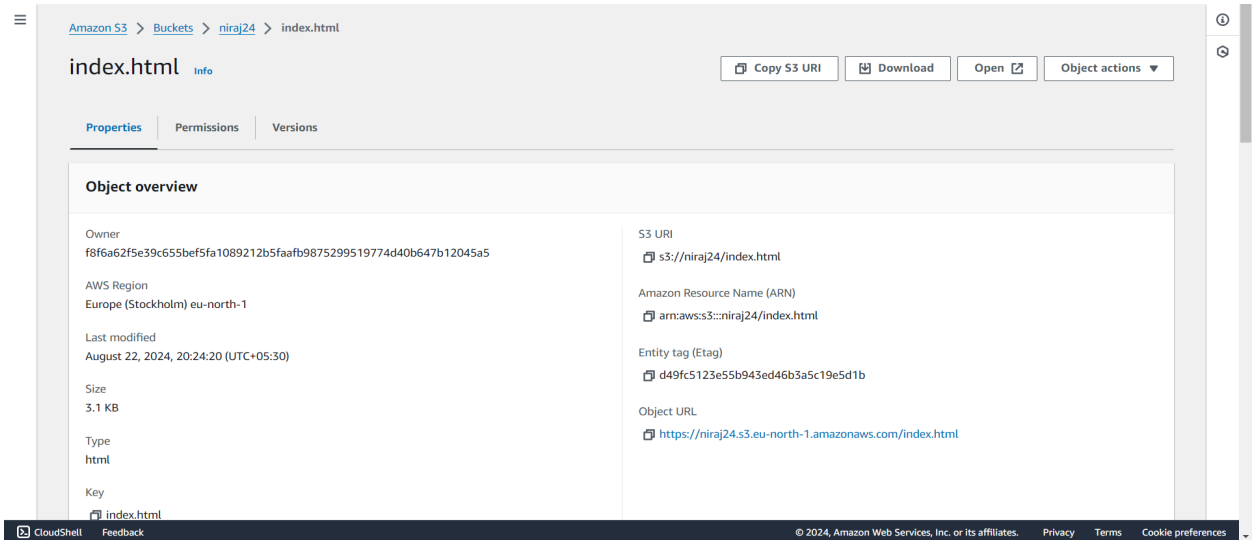
Amazon S3 > Buckets > niraj24 > index.html
index.html Info
Copy S3 URI
Download
Open
Object actions
Properties
Permissions
Versions
Object overview
Owner
f8f6a62f5e39c655bef5fa1089212b5faafb9875299519774d40b647b12045a5
AWS Region
Europe (Stockholm) eu-north-1
Last modified
August 22, 2024, 20:24:20 (UTC+05:30)
Size
3.1 KB
Type
html
Key
index.html
S3 URI
s3://niraj24/index.html
Amazon Resource Name (ARN)
arn:aws:s3:::niraj24/index.html
Entity tag (Etag)
d49fc5123e55b943ed46b3a5c19e5d1b
Object URL
https://niraj24.s3.eu-north-1.amazonaws.com/index.html
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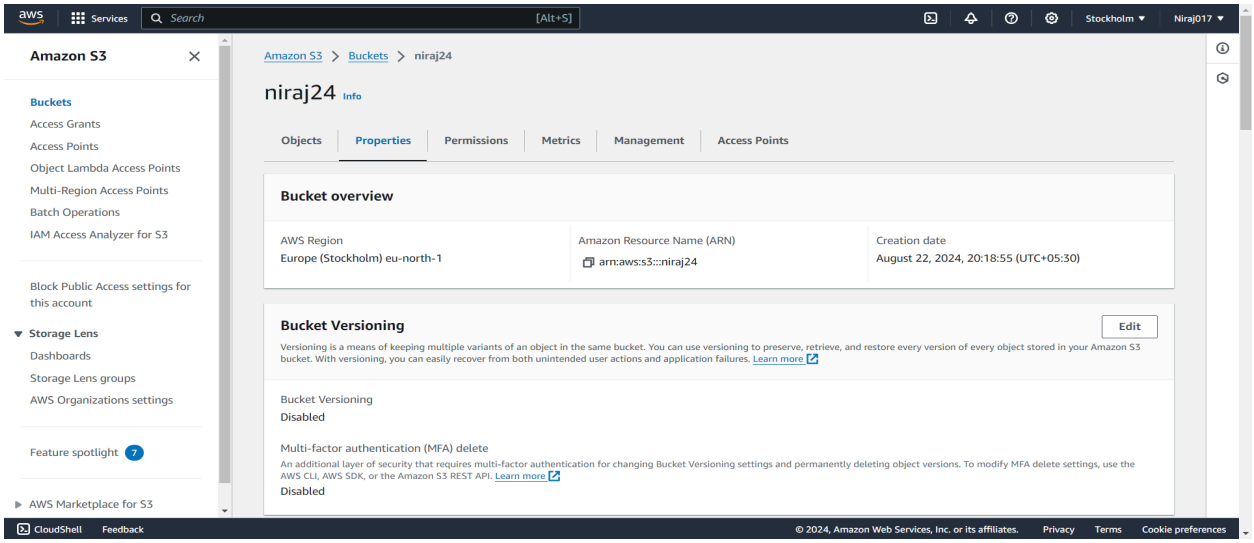
aws
Services
Search
[Alt+S]
Stockholm
Niraj017
Amazon S3
Buckets
Access Grants
Access Points
Object Lambda Access Points
Multi-Region Access Points
Batch Operations
IAM Access Analyzer for S3
Block Public Access settings for this account
Storage Lens
Dashboards
Storage Lens groups
AWS Organizations settings
Feature spotlight
AWS Marketplace for S3
Amazon S3 > Buckets > niraj24
niraj24 Info
Objects
Properties
Permissions
Metrics
Management
Access Points
Bucket overview
AWS Region
Europe (Stockholm) eu-north-1
Amazon Resource Name (ARN)
arn:aws:s3:::niraj24
Creation date
August 22, 2024, 20:18:55 (UTC+05:30)
Bucket Versioning
Edit
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
Disabled
Multi-factor authentication (MFA) delete
An additional layer of security that requires multi-factor authentication for changing Bucket Versioning settings and permanently deleting object versions. To modify MFA delete settings, use the AWS CLI, AWS SDK, or the Amazon S3 REST API. Learn more
Disabled
CloudShell
Feedback
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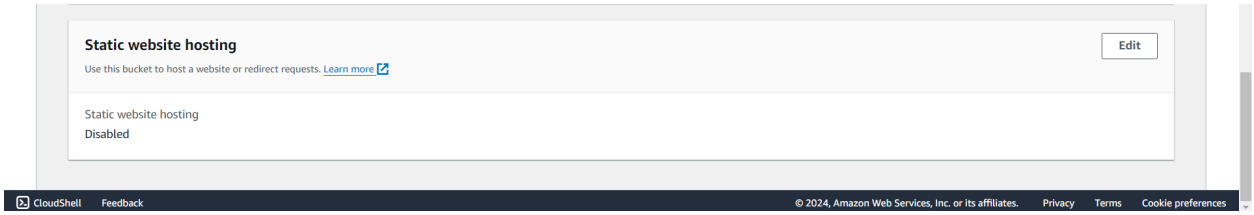
Static website hosting
Edit
Use this bucket to host a website or redirect requests. Learn more
Static website hosting
Disabled
CloudShell
Feedback
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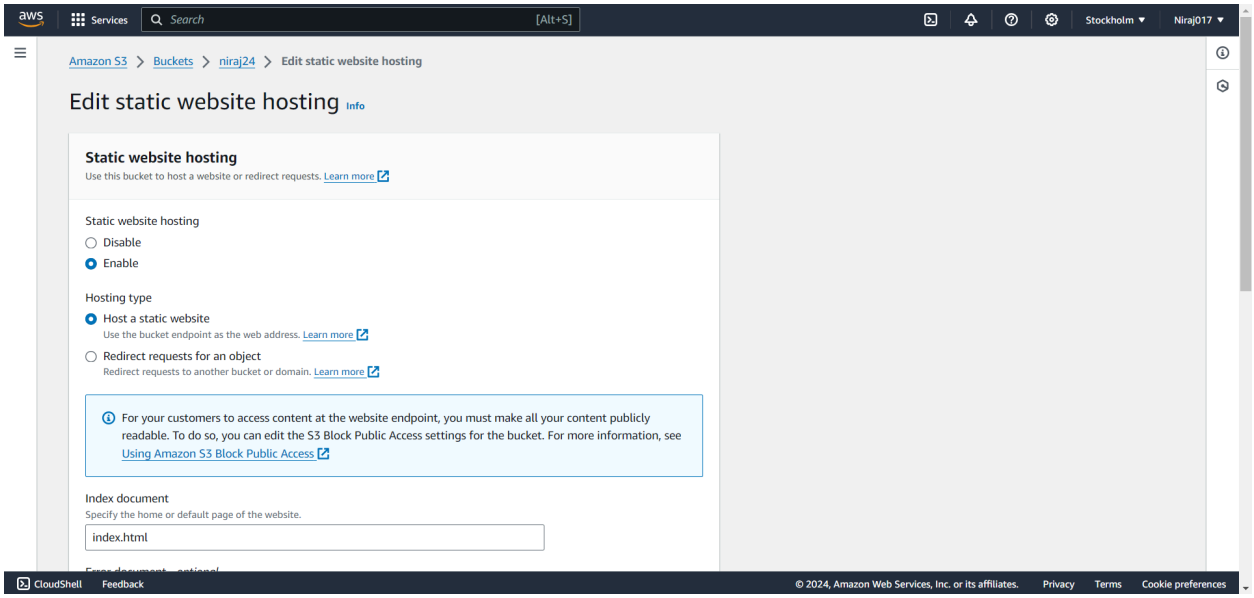
aws
Services
Search
[Alt+S]
Stockholm
Niraj017
Amazon S3 > Buckets > niraj24 > Edit static website hosting
Edit static website hosting Info
Static website hosting
Use this bucket to host a website or redirect requests. Learn more
Static website hosting
Disable
Enable
Hosting type
Host a static website
Use the bucket endpoint as the web address. Learn more
Redirect requests for an object
Redirect requests to another bucket or domain. Learn more
For your customers to access content at the website endpoint, you must make all your content publicly readable. To do so, you can edit the S3 Block Public Access settings for the bucket. For more information, see Using Amazon S3 Block Public Access
Index document
Specify the home or default page of the website.
index.html
CloudShell
Feedback
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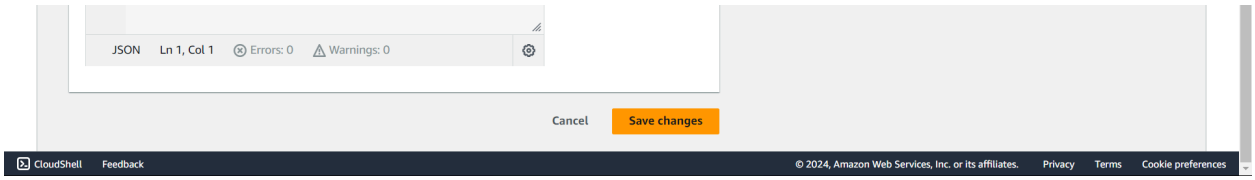
JSON
Ln 1, Col 1
Errors: 0
Warnings: 0
Cancel
Save changes
CloudShell
Feedback
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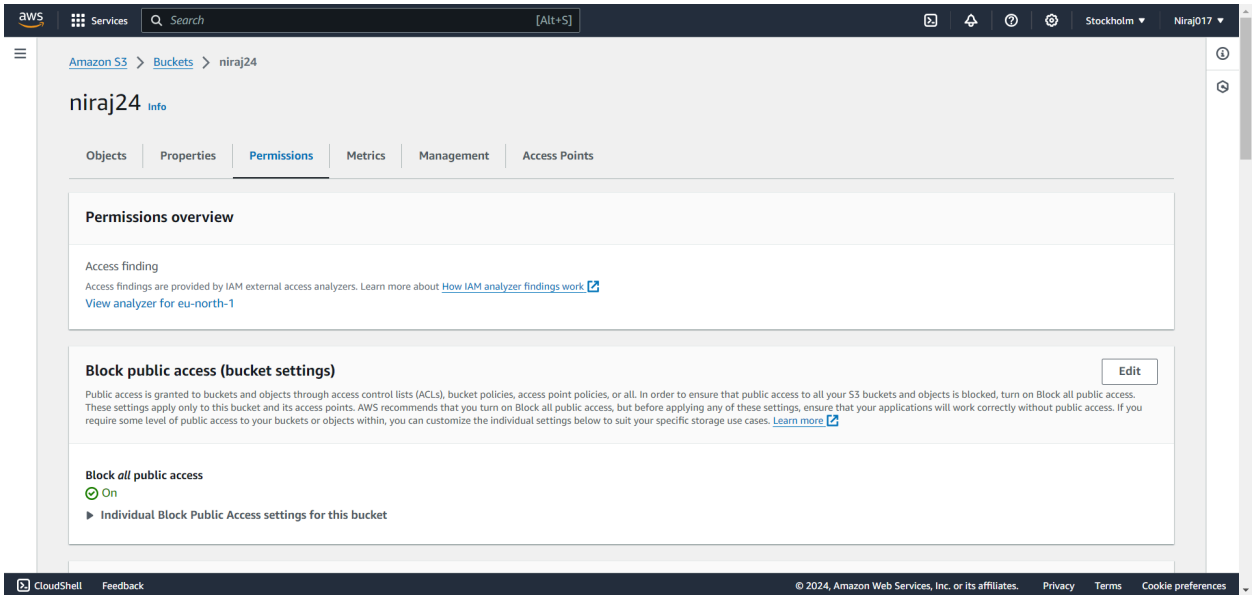
aws
Services
Search
[Alt+S]
Stockholm
Niraj017
Amazon S3 > Buckets > niraj24
niraj24 Info
Objects
Properties
Permissions
Metrics
Management
Access Points
Permissions overview
Access finding
Access findings are provided by IAM external access analyzers. Learn more about How IAM analyzer findings work
View analyzer for eu-north-1
Block public access (bucket settings)
Edit
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 all your S3 buckets and 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 your buckets or objects within, you can customize the individual settings below to suit your specific storage use cases. Learn more
Block all public access
On
Individual Block Public Access settings for this bucket
CloudShell
Feedback
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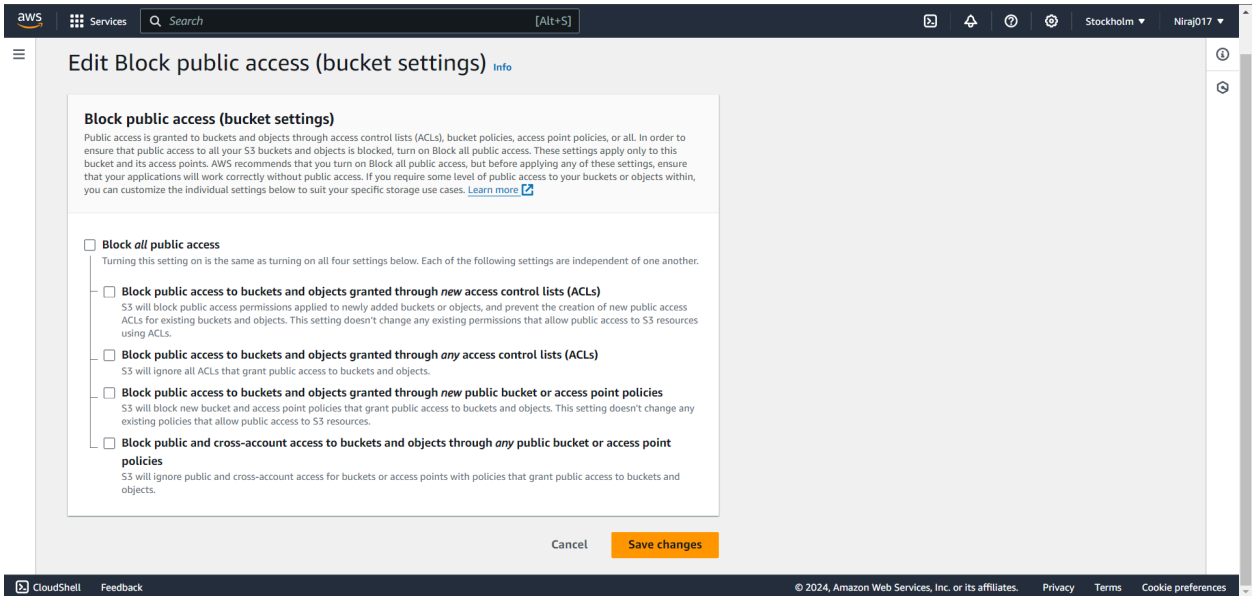
Privacy
Terms
Cookie preferences


aws
Services
Search
[Alt+S]
Stockholm
Niraj017
Edit Block public access (bucket settings) Info
Block public access (bucket settings)
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 all your S3 buckets and 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 your buckets 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.
Cancel
Save changes
CloudShell
Feedback
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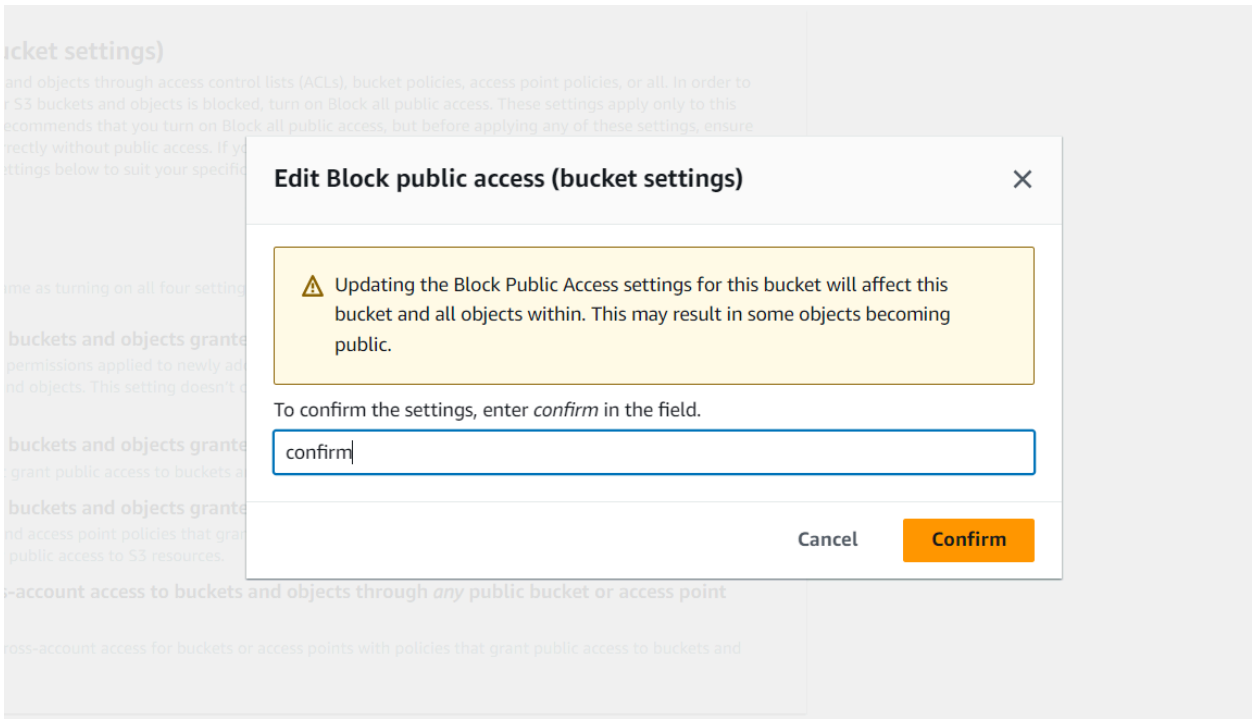
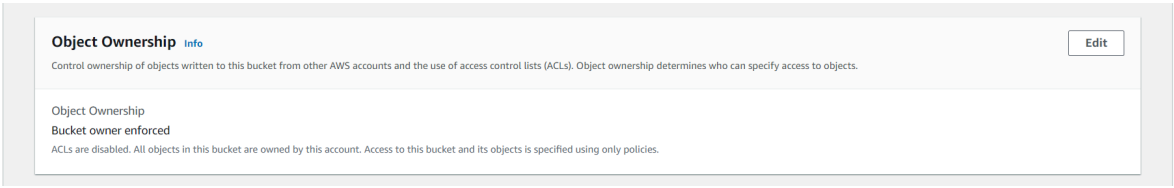
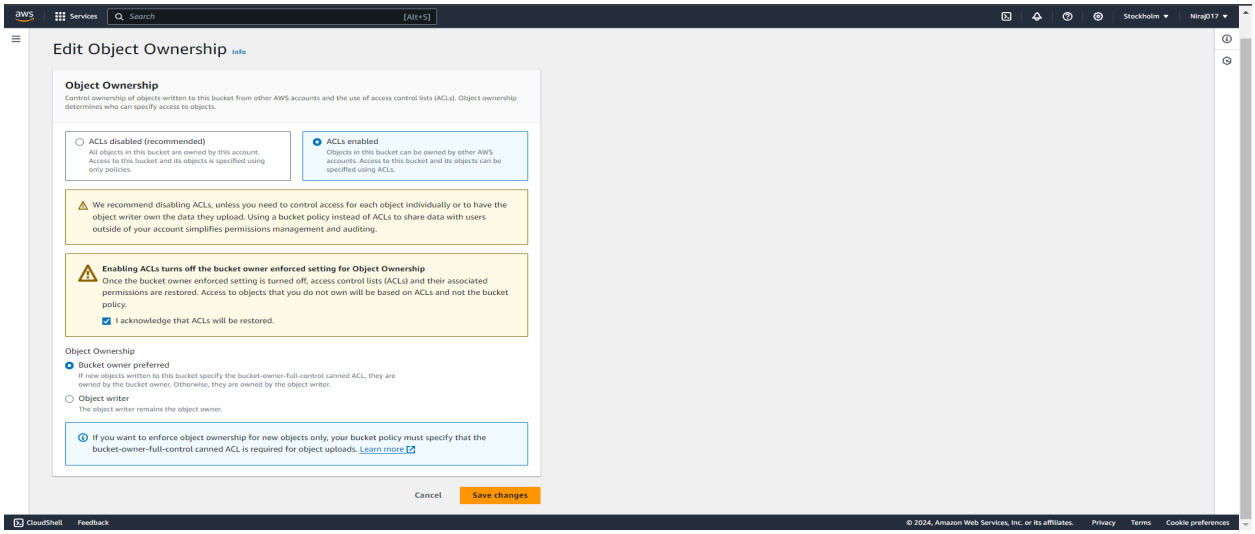
Privacy
Terms
Cookie preferences


Edit Block public access (bucket settings)
Updating the Block Public Access settings for this bucket will affect this bucket and all objects within. This may result in some objects becoming public.
To confirm the settings, enter confirm in the field.
confirm
Cancel
Confirm


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.
Edit
Object Ownership
Bucket owner enforced
ACLs are disabled. All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.


Edit Object Ownership
Info
Object Ownership
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.
We recommend disabling ACLs, unless you need to control access for each object individually or to have the object writer own the data they upload. Using a bucket policy instead of ACLs to share data with users outside of your account simplifies permissions management and auditing.
Enabling ACLs turns off the bucket owner enforced setting for Object Ownership
Once the bucket owner enforced setting is turned off, access control lists (ACLs) and their associated permissions are restored. Access to objects that you do not own will be based on ACLs and not the bucket policy.
I acknowledge that ACLs will be restored.
Object Ownership
Bucket owner preferred
If new objects written to this bucket specify the bucket-owner-full-control canned ACL, they are owned by the bucket owner. Otherwise, they are owned by the object writer.
Object writer
The object writer remains the object owner.
If you want to enforce object ownership for new objects only, your bucket policy must specify that the bucket-owner-full-control canned ACL is required for object uploads. Learn more
Cancel
Save changes
CloudShell
Feedback
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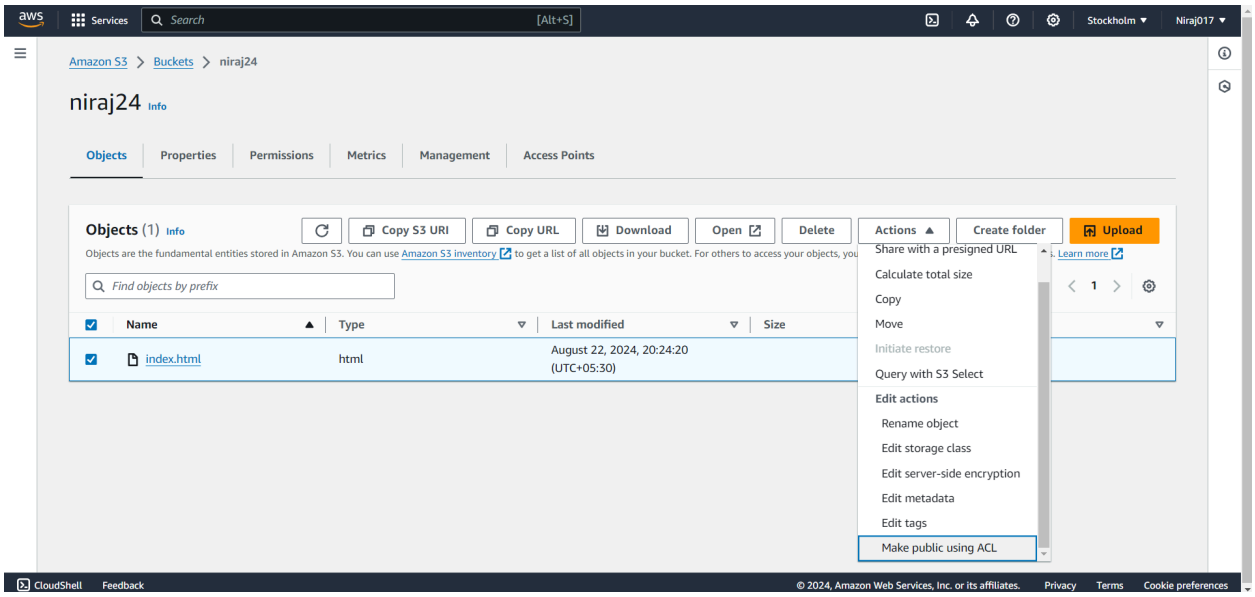
Amazon S3 > Buckets > niraj24
niraj24
Info
Objects
Properties
Permissions
Metrics
Management
Access Points
Objects (1) Info
Copy S3 URI
Copy URL
Download
Open
Delete
Actions
Create folder
Upload
Find objects by prefix
Name
Type
Last modified
Size
index.html
html
August 22, 2024, 20:24:20 (UTC+05:30)
Share with a presigned URL
Calculate total size
Copy
Move
Initiate restore
Query with S3 Select
Edit actions
Rename object
Edit storage class
Edit server-side encryption
Edit metadata
Edit tags
Make public using ACL
CloudShell
Feedback
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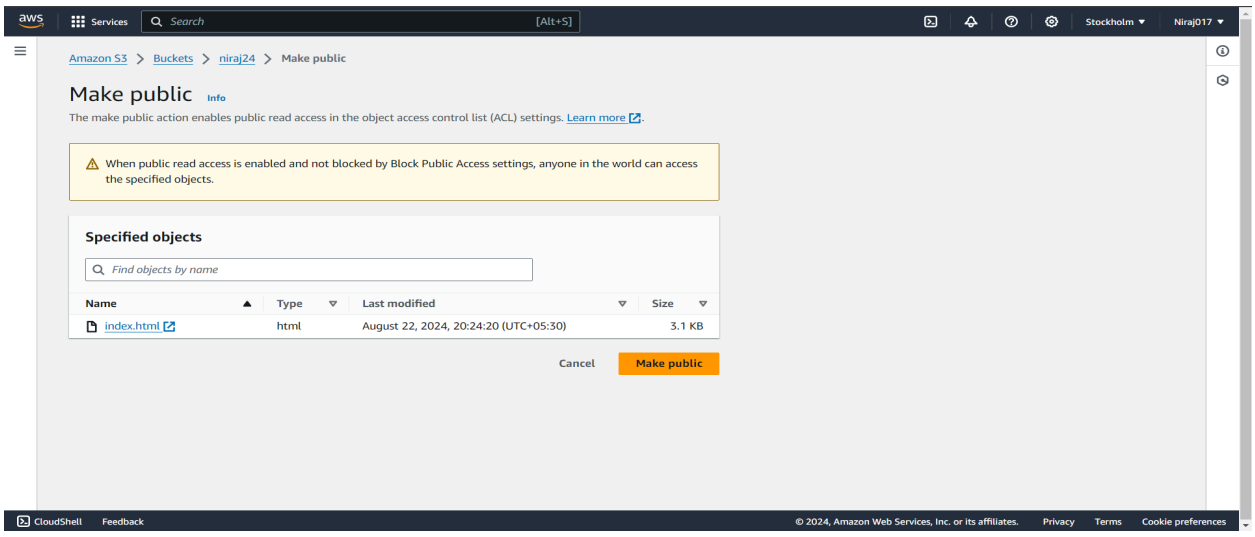
Amazon S3 > Buckets > niraj24 > Make public
Make public
Info
The make public action enables public read access in the object access control list (ACL) settings. Learn more.
When public read access is enabled and not blocked by Block Public Access settings, anyone in the world can access the specified objects.
Specified objects
Find objects by name
Name
Type
Last modified
Size
index.html
html
August 22, 2024, 20:24:20 (UTC+05:30)
3.1 KB
Cancel
Make public
CloudShell
Feedback
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Privacy
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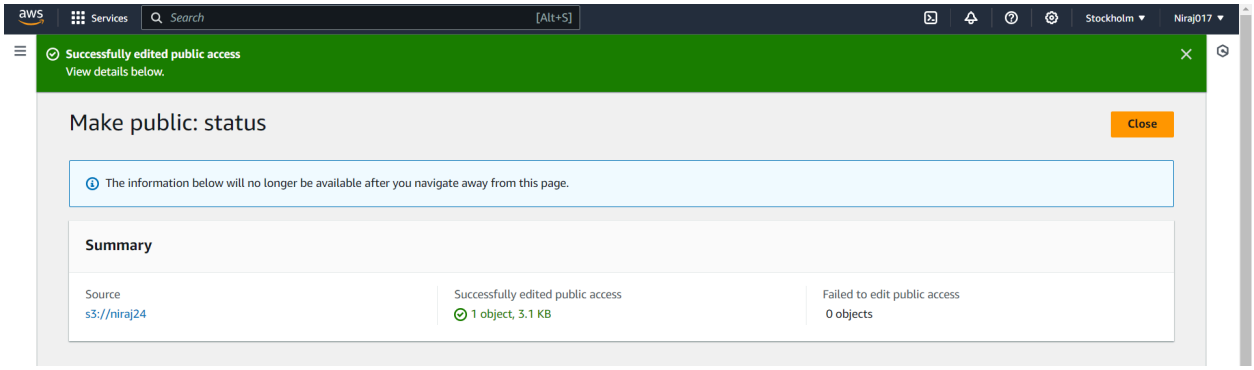
Cookie preferences



Order Your Customized T-Shirt

T-Shirt Customization

Tagline on the Shirt: Enter your tagline

Color: Select a color

Size: Select a size

Quantity: 1

Delivery Date: dd-mm-yyyy

Delivery Details

Recipient's Name: Full name

Address: Delivery address

Email: Email address

Phone Number: Phone number Format: 1234567890

Additional Comments: Any special instructions

Submit Order Reset Form

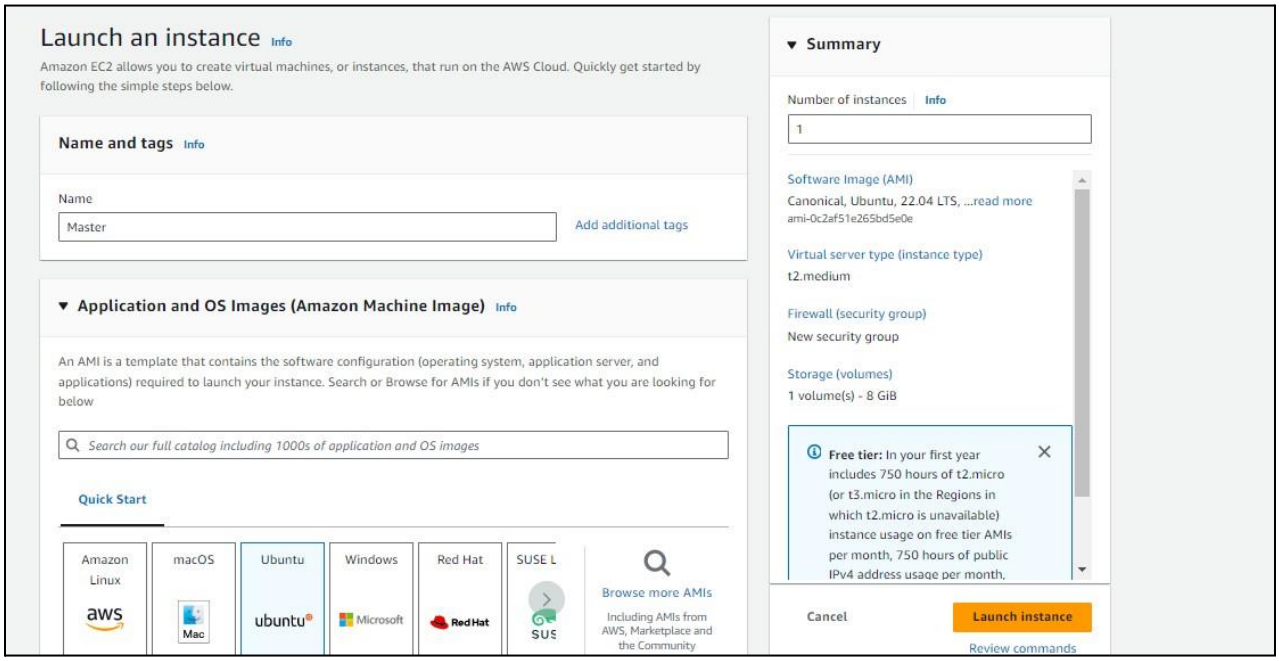
ADVANCE DEVOPS EXP 3

Niraj S. Kothawade
D15A - 24

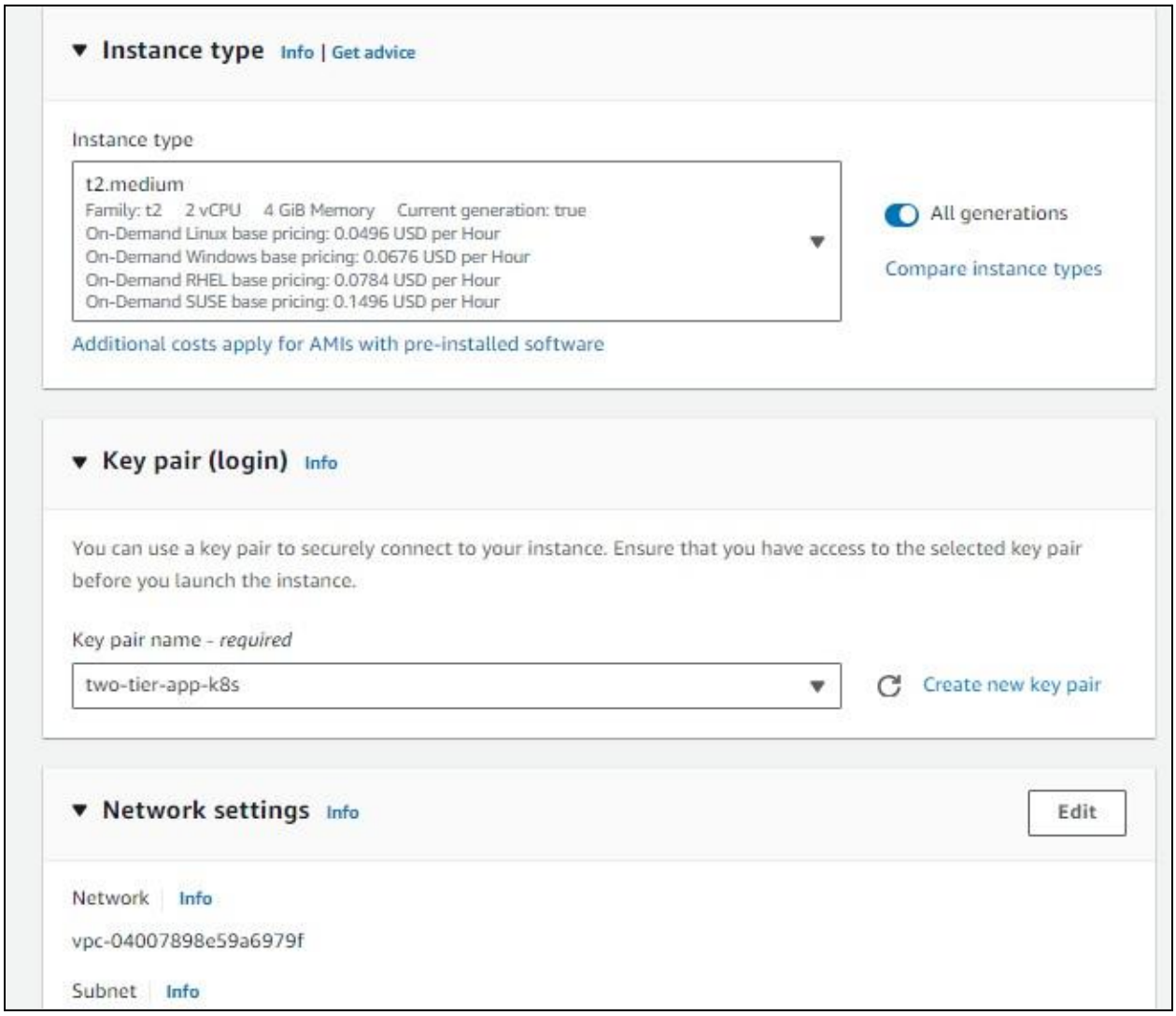
Aim:To understand the Kubernetes Cluster Architecture, install and Spin Up a Kubernetes Cluster on Linux Machines/Cloud Platforms.

Step 1: Pre-requisites

1.1 Create 3 EC2 instances,one for the master node and two for the worker nodes.



1.2 Proceed with the following settings and create a new key pair as follows(use the same key pair for all the three nodes)



Create key pair

Key pair name

Key pairs allow you to connect to your instance securely.

two-tier-app-k8s

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type

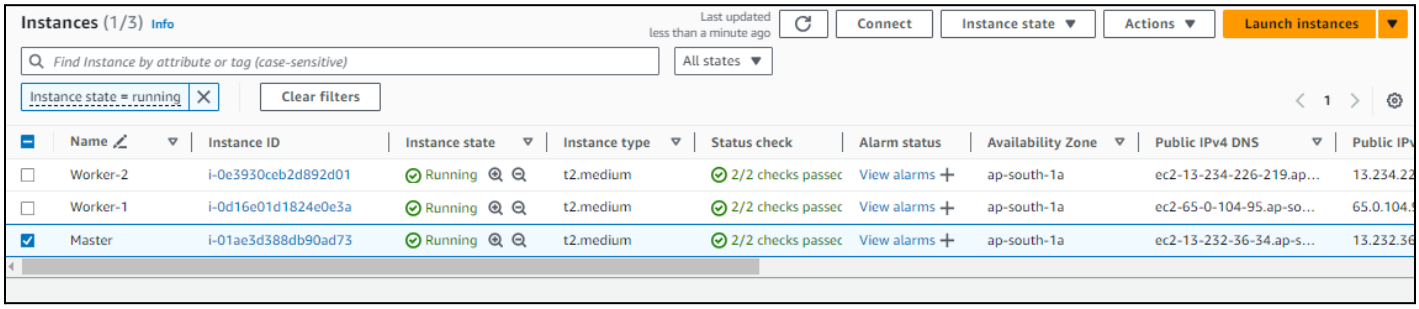
- (•) RSA — RSA encrypted private and public key pair
- ( ) ED25519 — ED25519 encrypted private and public key pair

Private key file format

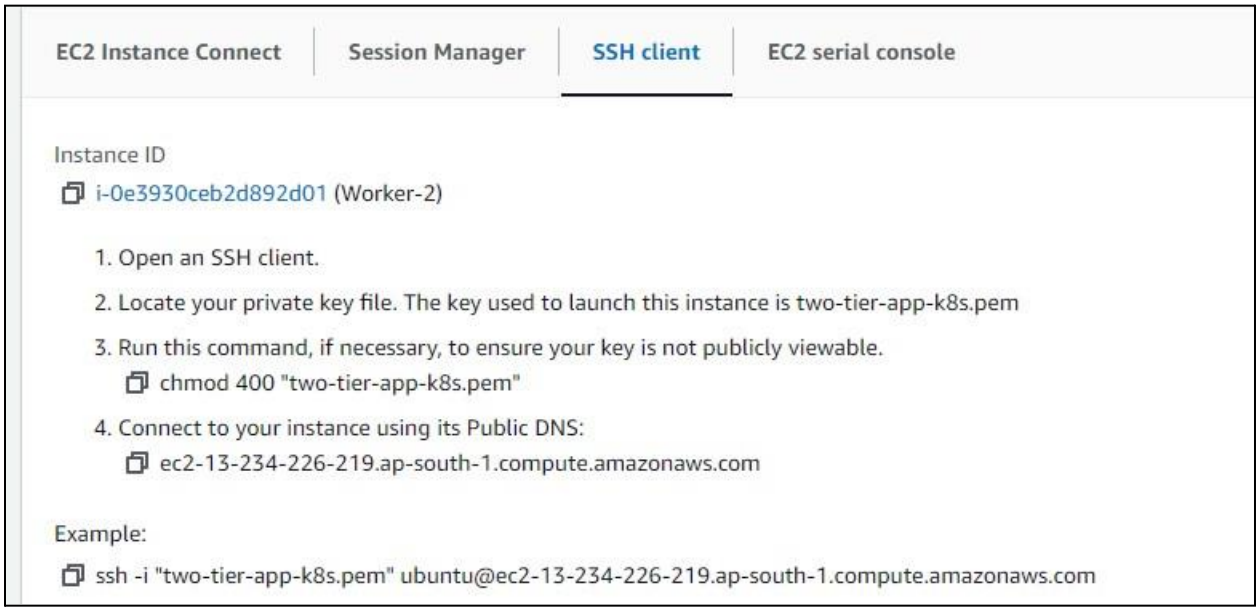
- (•) .pem — For use with OpenSSH
- ( ) .ppk — For use with PuTTY

⚠ When prompted, store the private key in a secure and accessible location on

Cancel | Create key pair



1.3 After the instances have been created,copy the text given in the example part of each of the three instances into git bash.

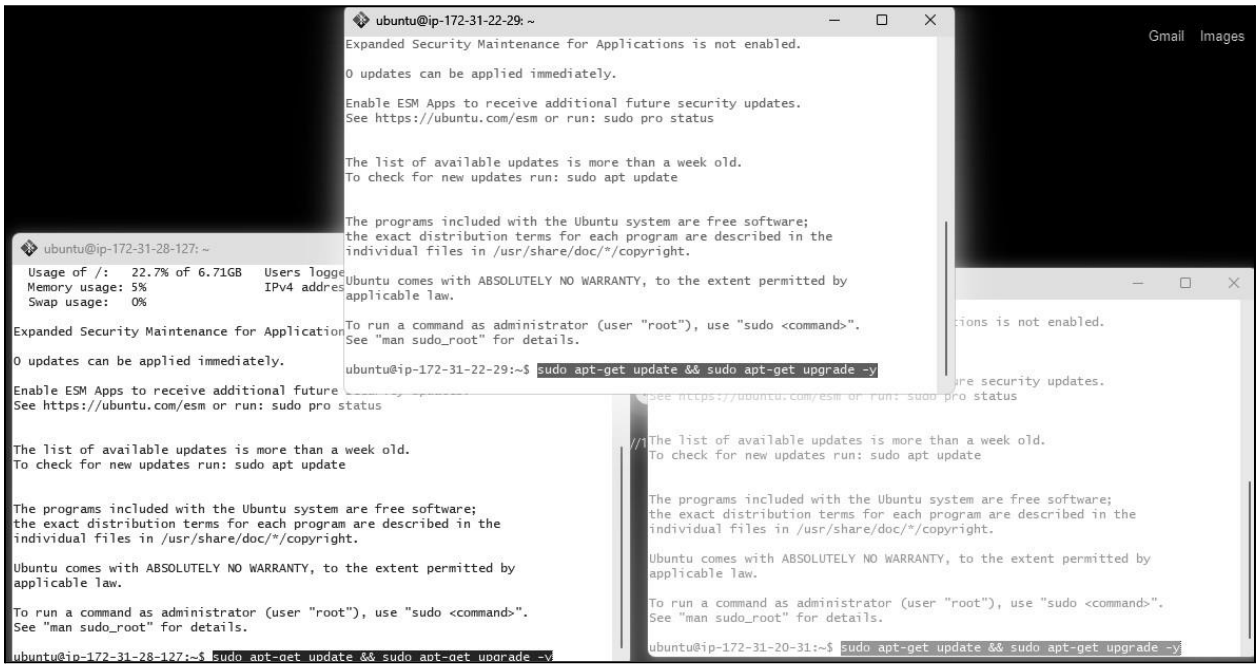


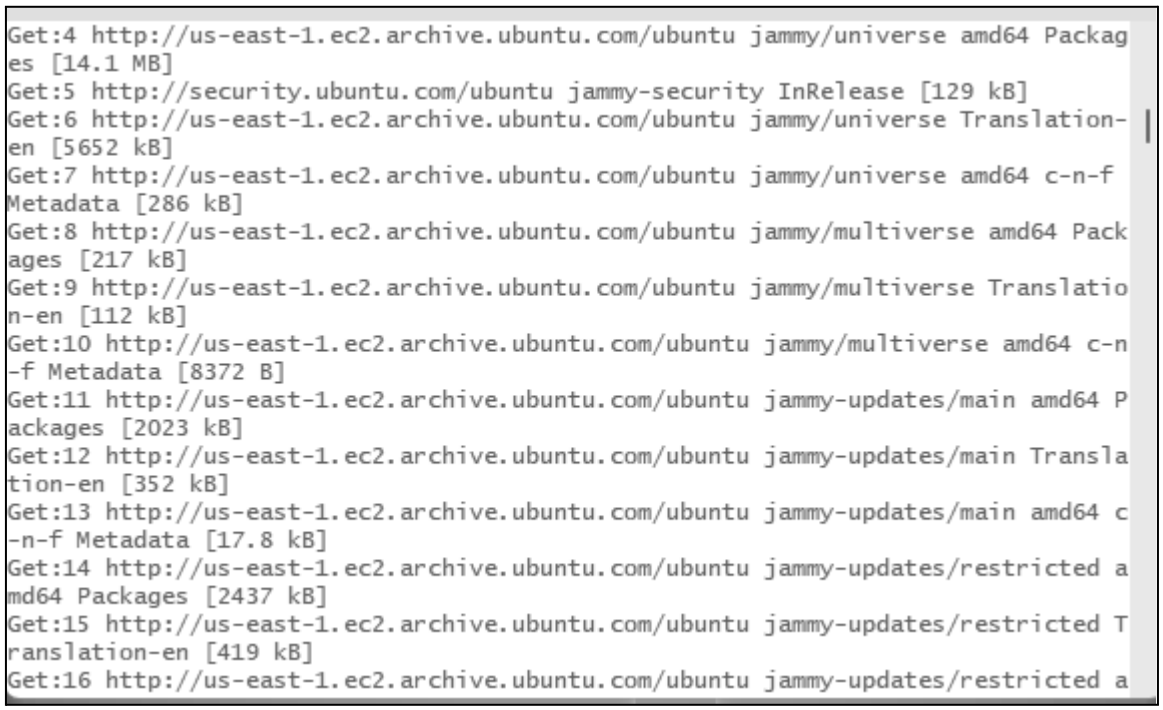

```
acer@TMP214-53 MINGW64 ~/Downloads
$ ssh -i "two-tier-app-k8s.pem" ubuntu@ec2-13-232-36-34.ap-south-1.compute.amazo
naws.com
The authenticity of host 'ec2-13-232-36-34.ap-south-1.compute.amazonaws.com (13.
232.36.34)' can't be established.
ED25519 key fingerprint is SHA256:uVGEO+FWYefj60j0ft70Sralv8NrzEi/IwxAtBY+EPE.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-13-232-36-34.ap-south-1.compute.amazonaws.com' (
ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 6.5.0-1022-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Wed Sep 11 14:07:10 UTC 2024

  System load:  0.0               Processes:             106
  Usage of /:   20.7% of 7.57GB   Users logged in:       0
  Memory usage: 5%                IPv4 address for eth0: 172.31.45.227
  Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
```

Step 2:Prepare Nodes

2.1. Update the package manager on all nodes:

sudo apt-get update && sudo apt-get upgrade -y





2.2. Disable Swap (Kubernetes requires swap to be off):
sudo swapoff -a
sudo sed -i '/ swap / s/^/#/' /etc/fstab

```
ubuntu@ip-172-31-22-29:~$ sudo swapoff -a
sudo sed -i '/ swap / s/^/#/' /etc/fstab
```

2.3. Load necessary kernel modules for networking and iptables:
cat <<EOF | sudo tee /etc/modules-load.d/k8s.conf
overlay
br_netfilter
EOF
sudo modprobe overlay
sudo modprobe br_netfilter

```
ubuntu@ip-172-31-22-29:~$ cat <<EOF | sudo tee /etc/modules-load.d/k8s.conf
overlay
br_netfilter
EOF
sudo modprobe overlay
sudo modprobe br_netfilter
overlay
br_netfilter
```

2.4. Configure sysctl settings for Kubernetes networking:
cat <<EOF | sudo tee /etc/sysctl.d/k8s.conf
net.bridge.bridge-nf-call-ip6tables = 1
net.bridge.bridge-nf-call-iptables = 1
EOF
sudo sysctl --system

```
ubuntu@ip-172-31-22-29:~$ cat <<EOF | sudo tee /etc/modules-load.d/k8s.conf
overlay
br_netfilter
EOF
sudo modprobe overlay
sudo modprobe br_netfilter
overlay
br_netfilter
ubuntu@ip-172-31-22-29:~$ cat <<EOF | sudo tee /etc/sysctl.d/k8s.conf
net.bridge.bridge-nf-call-ip6tables = 1
net.bridge.bridge-nf-call-iptables = 1
EOF
sudo sysctl --system
net.bridge.bridge-nf-call-ip6tables = 1
net.bridge.bridge-nf-call-iptables = 1
* Applying /etc/sysctl.d/10-console-messages.conf ...
kernel.printk = 4 4 1 7
* Applying /etc/sysctl.d/10-ipv6-privacy.conf ...
net.ipv6.conf.all.use_tempaddr = 2
net.ipv6.conf.default.use_tempaddr = 2
* Applying /etc/sysctl.d/10-kernel-hardening.conf ...
kernel.kptr_restrict = 1
```

Step 3: Install Docker

Kubernetes uses container runtimes like Docker. Install Docker on all nodes.

sudo apt-get update
sudo apt-get install -y apt-transport-https ca-certificates curl software-properties-common
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable"
sudo apt-get update
sudo apt-get install -y docker-ce docker-ce-cli containerd.io

```
ubuntu@ip-172-31-22-29:~$ sudo apt-get update
sudo apt-get install -y apt-transport-https ca-certificates curl software-proper
ties-common
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubun
tu $(lsb_release -cs) stable"
sudo apt-get update
sudo apt-get install -y docker-ce docker-ce-cli containerd.io
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Fetched 129 kB in 1s (241 kB/s)
Reading package lists... Done
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ca-certificates is already the newest version (20230311ubuntu0.22.04.1).
ca-certificates set to manually installed.
curl is already the newest version (7.81.0-1ubuntu1.17).
curl set to manually installed.
software-properties-common is already the newest version (0.99.22.9).
software-properties-common set to manually installed.
```

Configure Docker for Kubernetes:

```
cat <<EOF | sudo tee /etc/docker/daemon.json
{
  "exec-opts": ["native.cgroupdriver=systemd"],
  "log-driver": "json-file",
  "log-opts": {
    "max-size": "100m"
  },
  "storage-driver": "overlay2"
}
EOF
sudo systemctl restart docker
```

Step 4: Install kubeadm, kubelet, kubectl

Install Kubernetes tools on all nodes.

4.1. Add Kubernetes APT repository:

```
sudo curl -fsSLo /usr/share/keyrings/kubernetes-archive-keyring.gpg
https://packages.cloud.google.com/apt/doc/apt-key.gpg
echo "deb [signed-by=/usr/share/keyrings/kubernetes-archive-keyring.gpg]
https://apt.kubernetes.io/ kubernetes-xenial main" | sudo tee
/etc/apt/sources.list.d/kubernetes.list
```

```
ubuntu@ip-172-31-22-29:~$ sudo curl -fsSLo /usr/share/keyrings/kubernetes-archiv
e-keyring.gpg https://packages.cloud.google.com/apt/doc/apt-key.gpg
echo "deb [signed-by=/usr/share/keyrings/kubernetes-archive-keyring.gpg] https:/
/apt.kubernetes.io/ kubernetes-xenial main" | sudo tee /etc/apt/sources.list.d/k
ubernetes.list
deb [signed-by=/usr/share/keyrings/kubernetes-archive-keyring.gpg] https://apt.k
ubernetes.io/ kubernetes-xenial main
```

4.2. Install kubeadm, kubelet, and kubectl:

sudo apt-get update

sudo apt-get install -y kubelet kubeadm kubectl

sudo apt-mark hold kubelet kubeadm kubectl

```
ubuntu@ip-172-31-22-29:~$ sudo apt-get update
sudo apt-get install -y kubelet kubeadm kubectl
sudo apt-mark hold kubelet kubeadm kubectl
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:5 https://download.docker.com/linux/ubuntu jammy InRelease
```

Step 5: Initialize the Kubernetes Cluster on Master Node

On the master node:

sudo kubeadm init --pod-network-cidr=10.244.0.0/16

```
ubuntu@ip-172-31-22-29:~$ sudo kubeadm init --pod-network-cidr=10.244.0.0/16 --v
=5
Found multiple CRI endpoints on the host. Please define which one do you wish to
 use by setting the 'criSocket' field in the kubeadm configuration file: unix://
/var/run/containerd/containerd.sock, unix:///var/run/crio/crio.sock
k8s.io/kubernetes/cmd/kubeadm/app/util/runtime.detectCRISocketImpl
        cmd/kubeadm/app/util/runtime/runtime.go:167
k8s.io/kubernetes/cmd/kubeadm/app/util/runtime.DetectCRISocket
        cmd/kubeadm/app/util/runtime/runtime.go:175
k8s.io/kubernetes/cmd/kubeadm/app/util/config.SetNodeRegistrationDynamicDefaults
        cmd/kubeadm/app/util/config/initconfiguration.go:118
k8s.io/kubernetes/cmd/kubeadm/app/util/config.SetInitDynamicDefaults
        cmd/kubeadm/app/util/config/initconfiguration.go:64
k8s.io/kubernetes/cmd/kubeadm/app/util/config.DefaultedInitConfiguration
        cmd/kubeadm/app/util/config/initconfiguration.go:248
k8s.io/kubernetes/cmd/kubeadm/app/util/config.LoadOrDefaultInitConfiguration
        cmd/kubeadm/app/util/config/initconfiguration.go:282
k8s.io/kubernetes/cmd/kubeadm/app/cmd.newInitData
        cmd/kubeadm/app/cmd/init.go:319
k8s.io/kubernetes/cmd/kubeadm/app/cmd.newCmdInit.func3
        cmd/kubeadm/app/cmd/init.go:170
k8s.io/kubernetes/cmd/kubeadm/app/cmd/phases/workflow.(*Runner).InitData
        cmd/kubeadm/app/cmd/phases/workflow/runner.go:183
k8s.io/kubernetes/cmd/kubeadm/app/cmd.newCmdInit.func1
```

5.1. Set up kubectl on the master node:
mkdir -p $HOME/.kube
sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config
sudo chown $(id -u):$(id -g) $HOME/.kube/config

```
ubuntu@ip-172-31-22-29:~$ sudo kubeadm config images pull

sudo kubeadm init

mkdir -p "$HOME"/.kube
sudo cp -i /etc/kubernetes/admin.conf "$HOME"/.kube/config
sudo chown "$(id -u)":"$(id -g)" "$HOME"/.kube/config


# Network Plugin = calico
kubectl apply -f https://raw.githubusercontent.com/projectcalico/calico/v3.26.0/manifests/calico.yaml

kubeadm token create --print-join-command --v=5
Found multiple CRI endpoints on the host. Please define which one do you wish to use by setting the 'criSocket' field in the kubeadm configuration file: unix:///var/run/containerd/containerd
ock, unix:///var/run/crio/crio.sock
To see the stack trace of this error execute with --v=5 or higher
Found multiple CRI endpoints on the host. Please define which one do you wish to use by setting the 'criSocket' field in the kubeadm configuration file: unix:///var/run/containerd/containerd
ock, unix:///var/run/crio/crio.sock
```

Step 6: Install a Pod Network Add-on

To enable communication between pods, install a pod network plugin like Flannel or Calico.

Install Flannel:

kubectl apply -f
https://raw.githubusercontent.com/coreos/flannel/master/Documentation/kube-flannel.yml

```
ubuntu@ip-172-31-22-29:~$ kubectl apply -f https://raw.githubusercontent.com/coreos/flannel/master/Documentation/kube-flannel.yml --validate=false

E0913 15:35:04.261458   19259 memcache.go:265] couldn't get current server API group list: Get "http://localhost:8080/api?timeout=32s": dial tcp 127.0.0.1:808
E0913 15:35:04.261902   19259 memcache.go:265] couldn't get current server API group list: Get "http://localhost:8080/api?timeout=32s": dial tcp 127.0.0.1:808
E0913 15:35:04.263424   19259 memcache.go:265] couldn't get current server API group list: Get "http://localhost:8080/api?timeout=32s": dial tcp 127.0.0.1:808
E0913 15:35:04.263795   19259 memcache.go:265] couldn't get current server API group list: Get "http://localhost:8080/api?timeout=32s": dial tcp 127.0.0.1:808
E0913 15:35:04.265840   19259 memcache.go:265] couldn't get current server API group list: Get "http://localhost:8080/api?timeout=32s": dial tcp 127.0.0.1:808
E0913 15:35:04.266524   19259 memcache.go:265] couldn't get current server API group list: Get "http://localhost:8080/api?timeout=32s": dial tcp 127.0.0.1:808
unable to recognize "https://raw.githubusercontent.com/coreos/flannel/master/Documentation/kube-flannel.yml": Get "http://localhost:8080/api?timeout=32s": dia
```

Step 7: Join Worker Nodes to the Cluster

On the **worker nodes**, run the command provided by the master node during initialization . It looks something like this:

sudo kubeadm join <master-ip>:6443 --token <token> --discovery-token-ca-cert-hash sha256:<hash>

```
clusterrolebinding.rbac.authorization.k8s.io/calico-cni-plugin created
daemonset.apps/calico-node created
deployment.apps/calico-kube-controllers created
kubeadm join 172.31.62.216:6443 --token br7fe5.hq28adbmn1mu17ky --discovery-token-ca-cert-hash sha256:2bc469a8d14fbeb0f879328d2b416fad
32b29a8505d3f448b98703fff3b014d9
```

Step 8: Verify the Cluster

Once the worker node joins, check the status on the **master node**

```
ubuntu@ip-172-31-45-227:~$ kubectl get nodes
NAME               STATUS   ROLES           AGE     VERSION
ip-172-31-43-211   Ready    <none>          50s     v1.29.0
ip-172-31-45-13    Ready    <none>          34s     v1.29.0
ip-172-31-45-227   Ready    control-plane   5m17s   v1.29.0
ubuntu@ip-172-31-45-227:~$
```

ADVANCE DEVOPS EXP 4

Niraj S. Kothawade
D15A - 24

Aim: To install Kubectl and execute Kubectl commands to manage the Kubernetes cluster and deploy Your First Kubernetes Application.

Step 1: Install Kubectl on Ubuntu

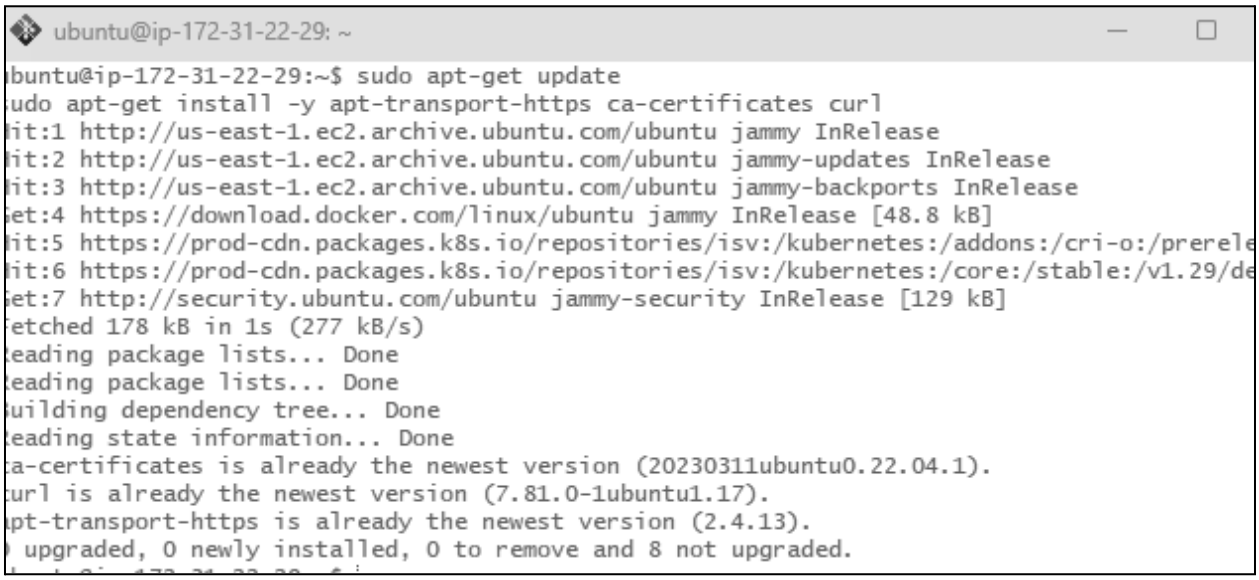
1.1 Add Kubernetes APT repository

First, add the Kubernetes repository to your system.

1. **Install prerequisites:**

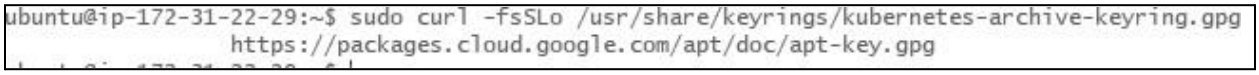
   sudo apt-get update

   sudo apt-get install -y apt-transport-https ca-certificates curl



2. **Add the GPG key for Kubernetes:**

   sudo curl -fsSLo /usr/share/keyrings/kubernetes-archive-keyring.gpg https://packages.cloud.google.com/apt/doc/apt-key.gpg



3. **Add the Kubernetes repository:**

echo "deb [signed-by=/usr/share/keyrings/kubernetes-archive-keyring.gpg] https://apt.kubernetes.io/ kubernetes-focal main" | sudo tee /etc/apt/sources.list.d/kubernetes.list

```
ubuntu@ip-172-31-22-29:~$  echo "deb [signed-by=/usr/share/keyrings/kubernetes-archive-keyring
.gpg]  https://apt.kubernetes.io/ kubernetes-focal main" | sudo tee /etc/apt/sources.list.d/ku
bernetes.list
deb [signed-by=/usr/share/keyrings/kubernetes-archive-keyring.gpg]  https://apt.kubernetes.io/
 kubernetes-focal main
```

1.2 Install kubectl

Now install kubectl:

sudo apt-get update

sudo apt-get install -y kubectl

```
ubuntu@ip-172-31-22-29:~$ sudo apt-get update
sudo apt-get install -y kubectl
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:5 https://download.docker.com/linux/ubuntu jammy InRelease
Hit:6 https://prod-cdn.packages.k8s.io/repositories/isv:/kubernetes:/addons:/cri-o:/prerelease:/main/deb  InRelease
Ign:7 https://packages.cloud.google.com/apt kubernetes-focal InRelease
Err:8 https://packages.cloud.google.com/apt kubernetes-focal Release
  404  Not Found [IP: 172.253.62.138 443]
Reading package lists... Done
E: The repository 'https://apt.kubernetes.io kubernetes-focal Release' does not have a Release file.
N: Updating from such a repository can't be done securely, and is therefore disabled by default.
N: See apt-secure(8) manpage for repository creation and user configuration details.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
kubectl is already the newest version (1.29.0-1.1).
0 upgraded, 0 newly installed, 0 to remove and 5 not upgraded.
```

Verify the installation(extra):

kubectl version --client

```
ubuntu@ip-172-31-22-29:~$ kubectl version --client
Client Version: v1.29.0
Kustomize Version: v5.0.4-0.20230601165947-6ce0bf390ce3
```

Step 2: Deploying Your Application on Kubernetes

2.1 Set up Kubernetes Cluster

1. If you haven't already set up a Kubernetes cluster (e.g., with kubeadm), use minikube or any managed Kubernetes service (like EKS, GKE, etc.) to get a cluster running.
2. Once your cluster is ready, verify the nodes:

   kubectl get nodes

```
ubuntu@ip-172-31-45-227:~$ kubectl get nodes
NAME                STATUS   ROLES           AGE     VERSION
ip-172-31-43-211    Ready    <none>          50s     v1.29.0
ip-172-31-45-13     Ready    <none>          34s     v1.29.0
ip-172-31-45-227    Ready    control-plane   5m17s   v1.29.0
ubuntu@ip-172-31-45-227:~$
```

Step 3:**Create the Deployment YAML file**

a) Create the YAML file: Use a text editor to create a file named nginx-deployment.yaml

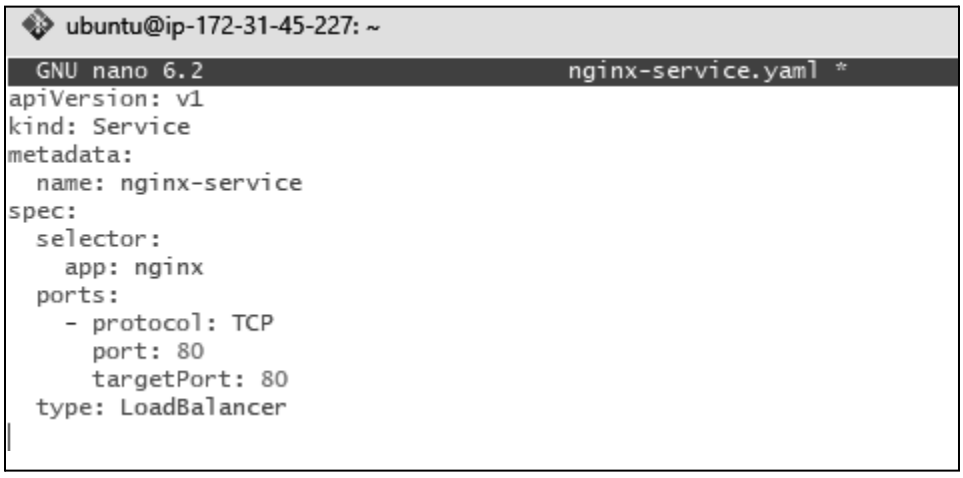
```
ubuntu@ip-172-31-45-227:~$ nano nginx-deployment.yaml
```

b) Add the Deployment Configuration: Copy and paste the following YAML content into the file. Save and exit the editor (Press Ctrl+X, then Y, and Enter).

Step 4:Create the Service YAML File

a) Create the YAML File: Create another file named nginx-service.yaml

b) Add the Service Configuration: Copy and paste the following YAML content into the file given below.



Step 5:Apply the YAML Files

a) Deploy the Application: Use kubectl to create the Deployment and Service from the YAML files.

```
ubuntu@ip-172-31-45-227:~$ kubectl apply -f nginx-deployment.yaml
kubectl apply -f nginx-service.yaml
deployment.apps/nginx-deployment created
service/nginx-service created
```

b) Verify the Deployment: Check the status of your Deployment,Pods and Services.

```
ubuntu@ip-172-31-45-227:~$ kubectl get deployments
kubectl get pods
kubectl get services
NAME               READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment   2/2     2            2           40s
NAME                                READY   STATUS    RESTARTS   AGE
nginx-deployment-6b4d6fdbf-6k84m    1/1     Running   0          40s
nginx-deployment-6b4d6fdbf-9d8j6    1/1     Running   0          40s
NAME            TYPE           CLUSTER-IP       EXTERNAL-IP   PORT(S)        AGE
kubernetes      ClusterIP      10.96.0.1        <none>        443/TCP        40m
nginx-service   LoadBalancer   10.106.182.152   <pending>     80:32317/TCP   40s
```

Describe the deployment(Extra)

```
ubuntu@ip-172-31-45-227:~$ kubectl get deployments
NAME               READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment   1/1     1            1           14h
ubuntu@ip-172-31-45-227:~$ kubectl describe deployment
Name:                   nginx-deployment
Namespace:              default
CreationTimestamp:      Wed, 11 Sep 2024 17:16:17 +0000
Labels:                 <none>
Annotations:            deployment.kubernetes.io/revision: 2
Selector:               app=nginx
Replicas:               1 desired | 1 updated | 1 total | 1 available | 0 unavailable
StrategyType:           RollingUpdate
MinReadySeconds:        0
RollingUpdateStrategy:  25% max unavailable, 25% max surge
Pod Template:
  Labels:  app=nginx
  Containers:
   nginx:
    Image:        nginx:latest
    Port:         80/TCP
    Host Port:    0/TCP
    Environment:  <none>
    Mounts:
      /usr/share/nginx/html from website-volume (rw)
  Volumes:
   website-volume:
    Type:      ConfigMap (a volume populated by a ConfigMap)
    Name:      nginx-website
    Optional:  false
Conditions:
  Type           Status  Reason
  ----           ------  ------
  Available      True    MinimumReplicasAvailable
  Progressing    True    NewReplicaSetAvailable
OldReplicaSets:  nginx-deployment-6b4d6fdbf (0/0 replicas created)
NewReplicaSet:   nginx-deployment-776b8fd845 (1/1 replicas created)
Events:          <none>
```

Step 6:Ensure Service is Running

6.1 **Verify Service**: Run the following command to check the services running in your cluster:

kubectl get service

```
ubuntu@ip-172-31-45-227:~$ kubectl get service
NAME            TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)        AGE
kubernetes      ClusterIP   10.96.0.1        <none>        443/TCP        16h
nginx           NodePort    10.106.0.176     <none>        80:32618/TCP   76m
nginx-service   NodePort    10.106.182.152   <none>        80:30007/TCP   15h
nginx2          NodePort    10.99.32.156     <none>        80:31421/TCP   8s
```

Step 7:Forward the Service Port to Your Local Machine

kubectl port-forward allows you to forward a port from your local machine to a port on a service running in the Kubernetes cluster.

1. **Forward the Service Port**: Use the following command to forward a local port to the service's target port.

   kubectl port-forward service/<service-name> <local-port>:<service-port>

```
ubuntu@ip-172-31-45-227:~$ kubectl port-forward service/nginx-service 8080:80
Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::1]:8080 -> 80
```

This command will forward local port 8080 on your machine to port 80 of the service nginx-service running inside the cluster.

2. This means port forwarding is now active, and any traffic to localhost:8080 will be routed to the nginx-service on port 80.

```
ubuntu@ip-172-31-45-227:~$ kubectl port-forward service/nginx-service 8080:80
Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::1]:8080 -> 80
^Cubuntu@ip-172-31-45-227:~kubectl port-forward service/nginx-service 8081:8080
Forwarding from 127.0.0.1:8081 -> 80
Forwarding from [::1]:8081 -> 80
^Cubuntu@ip-172-31-45-227:~$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
nginx-deployment-776b8fd845-k9cx4   1/1     Running   0          113m
ubuntu@ip-172-31-45-227:~$ kubectl logs nginx-deployment-776b8fd845-k9cx4
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2024/09/12 06:35:51 [notice] 1#1: using the "epoll" event method
2024/09/12 06:35:51 [notice] 1#1: nginx/1.27.1
2024/09/12 06:35:51 [notice] 1#1: built by gcc 12.2.0 (Debian 12.2.0-14)
2024/09/12 06:35:51 [notice] 1#1: OS: Linux 6.5.0-1022-aws
2024/09/12 06:35:51 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2024/09/12 06:35:51 [notice] 1#1: start worker processes
2024/09/12 06:35:51 [notice] 1#1: start worker process 24
2024/09/12 06:35:51 [notice] 1#1: start worker process 25
```

Step 8: Access the Application Locally

1. **Open a Web Browser**: Now open your web browser and go to the following URL:

   http://localhost:8080

You should see the application (in this case, Nginx) that you have deployed running in the Kubernetes cluster, served locally via port 8080.

In case the port 8080 is unavailable, try using a different port like 8081

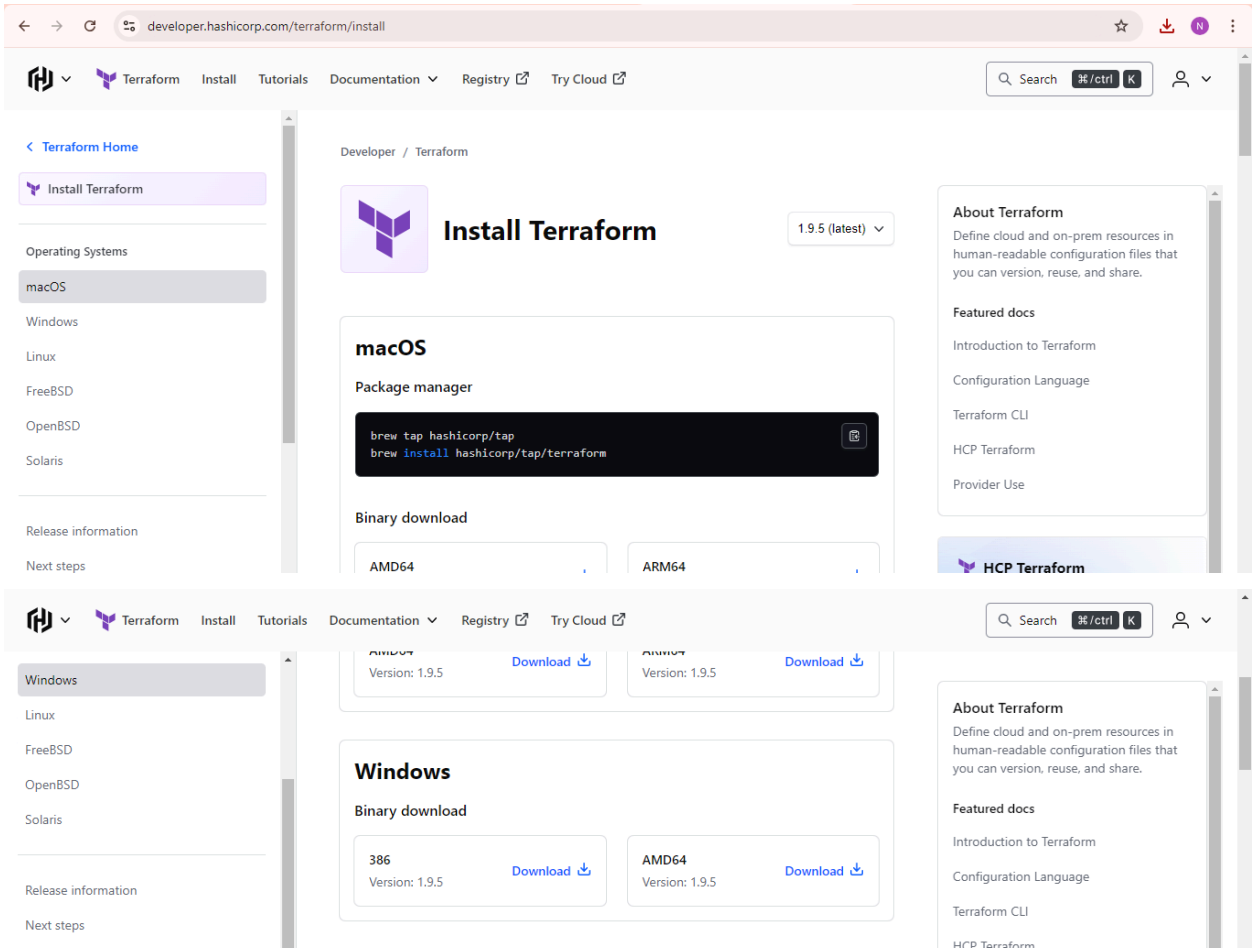
ADVANCE DEVOPS EXP 5

Niraj Kothawade
D15A - 24

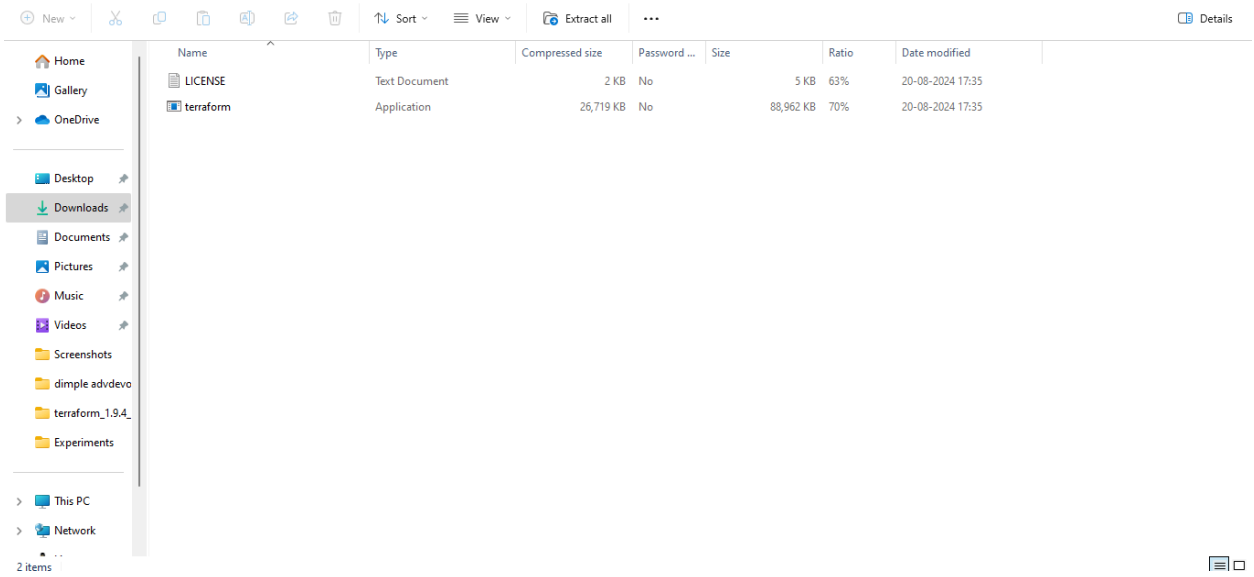
Aim: To understand terraform lifecycle, core concepts/terminologies and install it on a Linux Machine and Windows.

Installation for Windows:

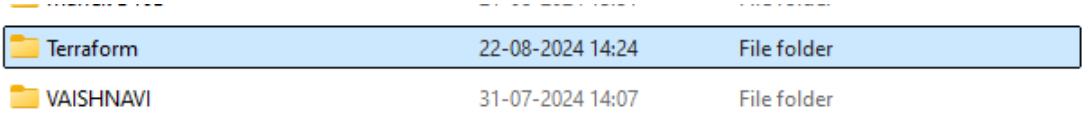
Step 1: Go to the website terraform.io and install Terraform from there..Select the AMD64 option for Windows and download Terraform.



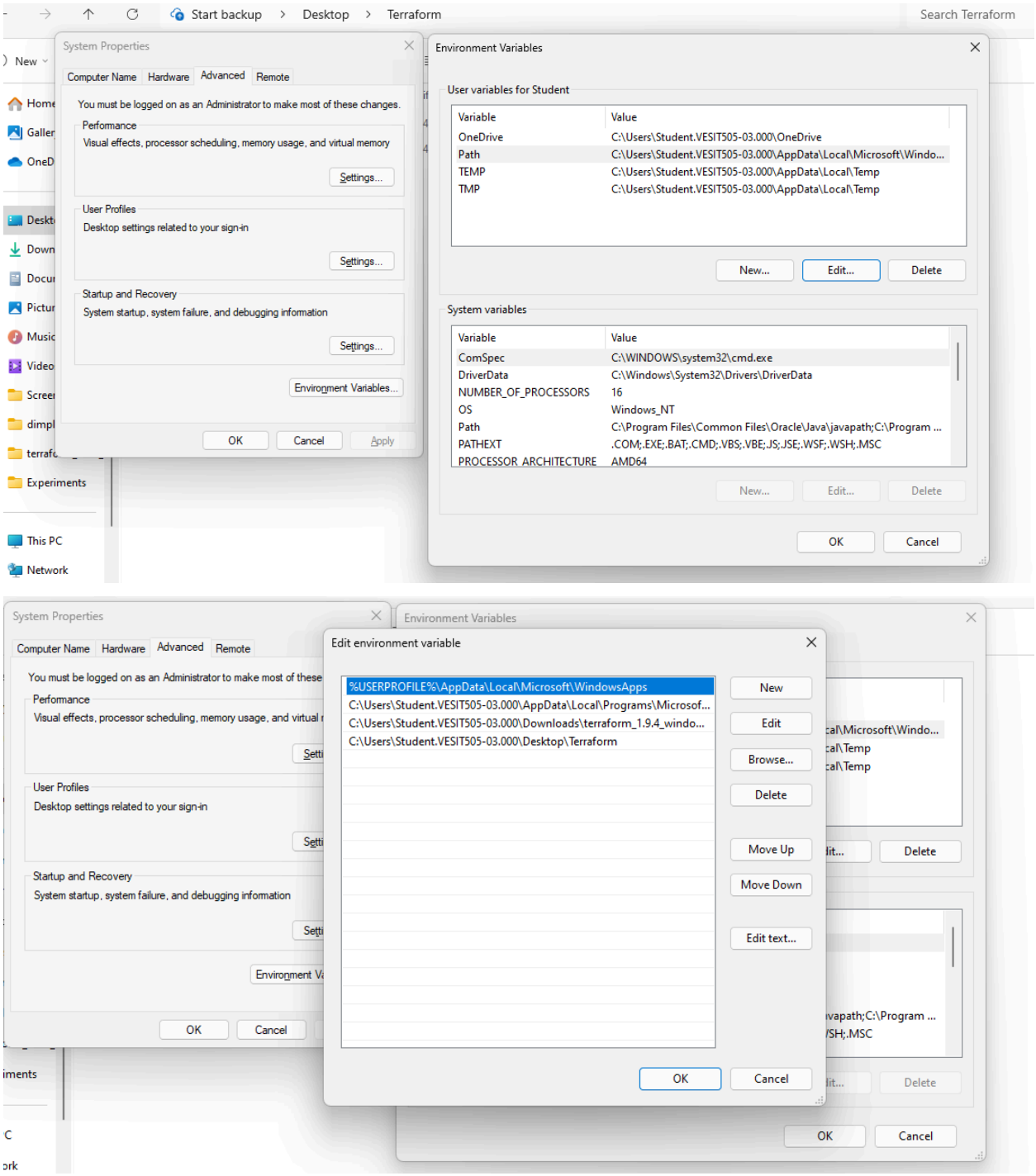
Step 2: Go to the zip file where Terraform is installed.



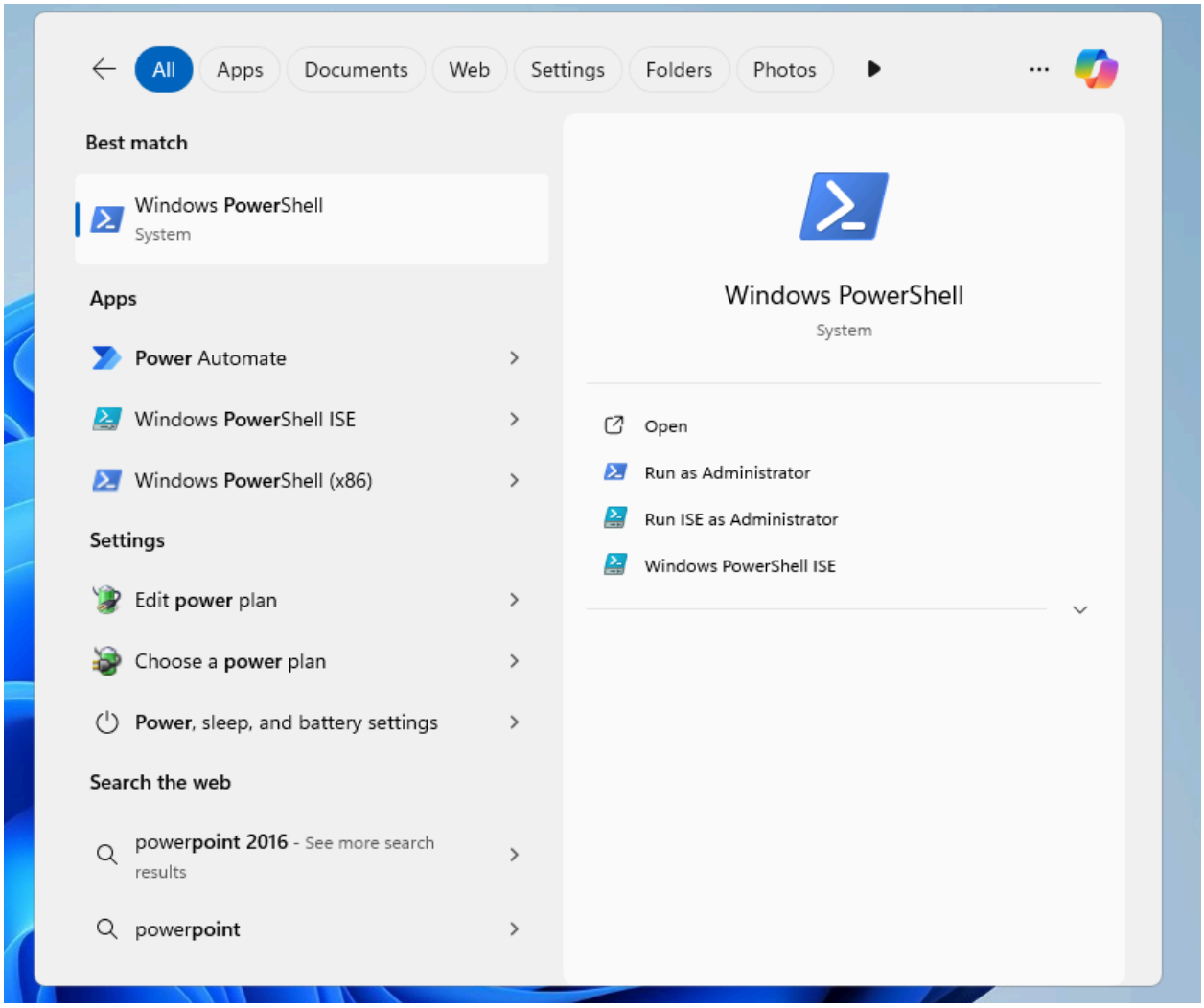
Step 3: Since the installed file is a zip file,create a new folder on desktop and copy the installed terraform application there.

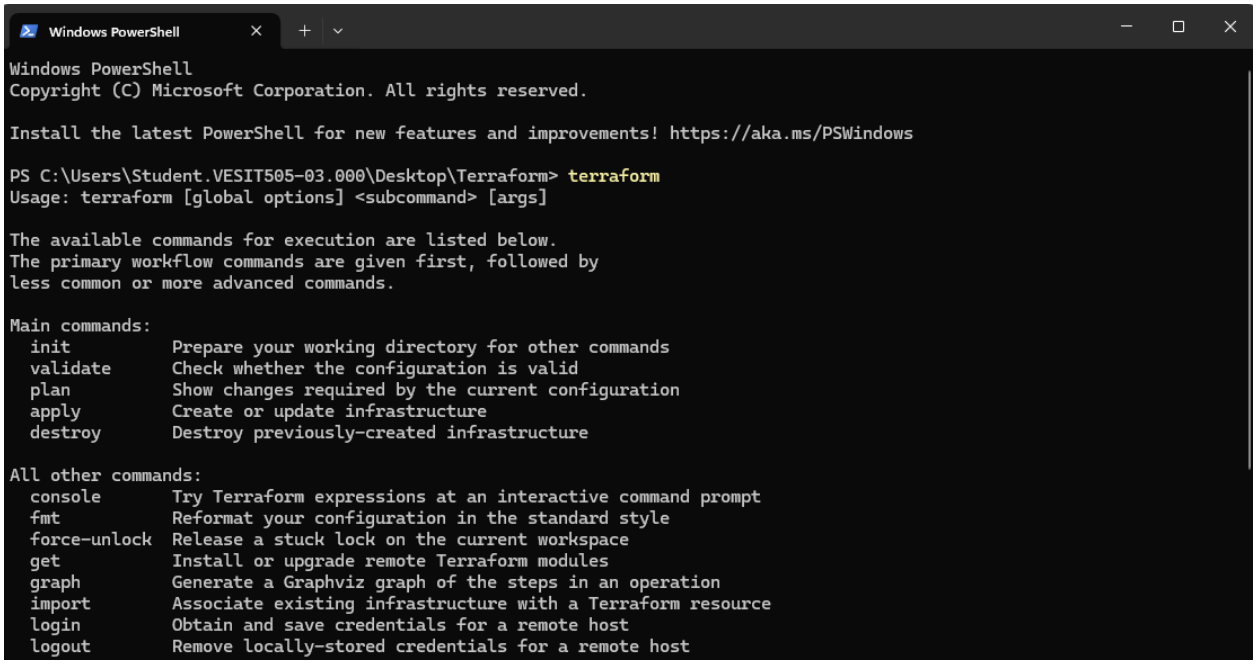


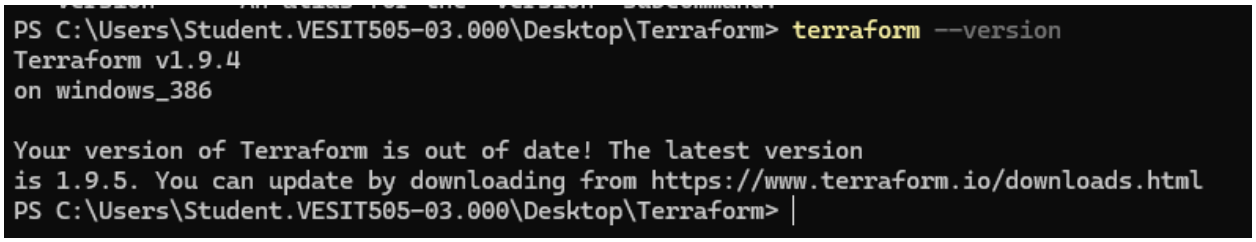
Step 4: Now go to search bar,select edit environment variables option,then go to the path option.Now add the file path of the directory wherein we have installed the terraform application.


Start backup
Desktop
Terraform
Search Terraform
System Properties
Computer Name
Hardware
Advanced
Remote
You must be logged on as an Administrator to make most of these changes.
Performance
Visual effects, processor scheduling, memory usage, and virtual memory
Settings...
User Profiles
Desktop settings related to your sign-in
Settings...
Startup and Recovery
System startup, system failure, and debugging information
Settings...
Environment Variables...
OK
Cancel
Apply
Environment Variables
User variables for Student
Variable
Value
OneDrive
C:\Users\Student.VESIT505-03.000\OneDrive
Path
C:\Users\Student.VESIT505-03.000\AppData\Local\Microsoft\Windo...
TEMP
C:\Users\Student.VESIT505-03.000\AppData\Local\Temp
TMP
C:\Users\Student.VESIT505-03.000\AppData\Local\Temp
New...
Edit...
Delete
System variables
Variable
Value
ComSpec
C:\WINDOWS\system32\cmd.exe
DriverData
C:\Windows\System32\Drivers\DriverData
NUMBER_OF_PROCESSORS
16
OS
Windows_NT
Path
C:\Program Files\Common Files\Oracle\Java\javapath;C:\Program ...
PATHEXT
.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC
PROCESSOR_ARCHITECTURE
AMD64
New...
Edit...
Delete
OK
Cancel
This PC
Network
Experiments
Edit environment variable
%USERPROFILE%\AppData\Local\Microsoft\WindowsApps
C:\Users\Student.VESIT505-03.000\AppData\Local\Programs\Microsof...
C:\Users\Student.VESIT505-03.000\Downloads\terraform_1.9.4_windo...
C:\Users\Student.VESIT505-03.000\Desktop\Terraform
New
Edit
Browse...
Delete
Move Up
Move Down
Edit text...
OK
Cancel

Step 5: Now go to the folder where we have installed terraform and open Powershell inside it.After this type ‘terraform’ to make sure that terraform has been installed on the system. The command ‘terraform –version simply checks the current version of terraform that has been installed.




Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
PS C:\Users\Student.VESIT505-03.000\Desktop\Terraform> terraform
Usage: terraform [global options] <subcommand> [args]
The available commands for execution are listed below.
The primary workflow commands are given first, followed by
less common or more advanced commands.
Main commands:
init Prepare your working directory for other commands
validate Check whether the configuration is valid
plan Show changes required by the current configuration
apply Create or update infrastructure
destroy Destroy previously-created infrastructure
All other commands:
console Try Terraform expressions at an interactive command prompt
fmt Reformat your configuration in the standard style
force-unlock Release a stuck lock on the current workspace
get Install or upgrade remote Terraform modules
graph Generate a Graphviz graph of the steps in an operation
import Associate existing infrastructure with a Terraform resource
login Obtain and save credentials for a remote host
logout Remove locally-stored credentials for a remote host


PS C:\Users\Student.VESIT505-03.000\Desktop\Terraform> terraform --version
Terraform v1.9.4
on windows_386
Your version of Terraform is out of date! The latest version
is 1.9.5. You can update by downloading from https://www.terraform.io/downloads.html
PS C:\Users\Student.VESIT505-03.000\Desktop\Terraform>

ADVANCE DEVOPS EXP 6

Niraj S. Kothawade
D15A -24

Aim:To Build, change, and destroy AWS / GCP /Microsoft Azure/ DigitalOcean infrastructure Using Terraform.
(S3 bucket or Docker) fdp.

Part A:Creating docker image using terraform

Prerequisite:
1) Download and Install Docker Desktop from https://www.docker.com/

Step 1: Check Docker functionality

```
Microsoft Windows [Version 10.0.22631.4037]
(c) Microsoft Corporation. All rights reserved.

C:\Users\student>docker

Usage:  docker [OPTIONS] COMMAND

A self-sufficient runtime for containers

Common Commands:
  run         Create and run a new container from an image
  exec        Execute a command in a running container
  ps          List containers
  build       Build an image from a Dockerfile
  pull        Download an image from a registry
  push        Upload an image to a registry
  images      List images
  login       Log in to a registry
  logout      Log out from a registry
  search      Search Docker Hub for images
  version     Show the Docker version information
  info        Display system-wide information

Management Commands:
  builder     Manage builds
  buildx*     Docker Buildx
  checkpoint  Manage checkpoints
  compose*    Docker Compose
  container   Manage containers
  context     Manage contexts
  debug*      Get a shell into any image or container
  desktop*    Docker Desktop commands (Alpha)
  dev*        Docker Dev Environments
  extension*  Manages Docker extensions
  feedback*   Provide feedback, right in your terminal!
```

Check for the docker version with the following command.

```
C:\Users\student>docker --version
Docker version 27.1.1, build 6312585

C:\Users\student>
```

Now, create a folder named 'Terraform Scripts' in which we save our different types of scripts which will be further used in this experiment.

Step 2: Firstly create a new folder named 'Docker' in the 'TerraformScripts' folder. Then create a new docker.tf file using Atom editor and write the followingcontents into it to create a Ubuntu Linux container.

Script:

```
terraform {
  required_providers {
  docker = {
      source = "kreuzwerker/docker"
      version = "2.21.0"
    }
  }
}

provider "docker" {
  host = "npipe:////./pipe/docker_engine"
}

# Pull the image
resource "docker_image" "ubuntu" {
  name = "ubuntu:latest"
}

# Create a container
resource "docker_container" "foo" {
  image = docker_image.ubuntu.image_id
  name  = "foo"
  command = ["sleep", "3600"]
```

}

docker.tf

```
terraform {
  required_providers {
    docker = {
      source  = "kreuzwerker/docker"
      version = "2.21.0"
    }
  }
}

provider "docker" {
  host = "npipe:////./pipe/docker_engine"
}

# Pull the image
resource "docker_image" "ubuntu" {
  name = "ubuntu:latest"
}

# Create a container
resource "docker_container" "foo" {
  image = docker_image.ubuntu.image_id
  name  = "foo"
  command = ["sleep", "3600"]
}
```

Step 3: Execute Terraform Init command to initialize the resources

```
PS C:\Users\Admin\TerraformScripts> cd Docker
PS C:\Users\Admin\TerraformScripts\Docker> terraform init
Initializing the backend...
Initializing provider plugins...
- Finding kreuzwerker/docker versions matching "2.21.0"...
- Installing kreuzwerker/docker v2.21.0...
- Installed kreuzwerker/docker v2.21.0 (self-signed, key ID BD080C4571C6104C)
Partner and community providers are signed by their developers.
If you'd like to know more about provider signing, you can read about it here:
https://www.terraform.io/docs/cli/plugins/signing.html
Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
```

Step 4: Execute Terraform plan to see the available resources

```
PS C:\Users\Admin\TerraformScripts\Docker> terraform plan

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the fol
  + create

Terraform will perform the following actions:

  # docker_container.foo will be created
  + resource "docker_container" "foo" {
      + attach           = false
      + bridge           = (known after apply)
      + command          = [
          + "sleep",
          + "3600",
        ]
      + container_logs   = (known after apply)
      + entrypoint       = (known after apply)
      + env              = (known after apply)
      + exit_code        = (known after apply)
      + gateway          = (known after apply)
      + hostname         = (known after apply)
      + id               = (known after apply)
      + image            = (known after apply)
      + init             = (known after apply)
      + ip_address       = (known after apply)
      + ip_prefix_length = (known after apply)
      + ipc_mode         = (known after apply)
      + log_driver       = (known after apply)
      + logs             = false
      + must_run         = true
      + name             = "foo"
      + network_data     = (known after apply)
      + read_only        = false
      + remove_volumes   = true
      + restart          = "no"
      + rm               = false
      + runtime          = (known after apply)
      + security_opts    = (known after apply)
      + shm_size         = (known after apply)
      + start            = true
      + stdin_open       = false
      + stop_signal      = (known after apply)
      + stop_timeout     = (known after apply)
      + tty              = false

      + healthcheck (known after apply)

      + labels (known after apply)
    }

  # docker_image.ubuntu will be created
  + resource "docker_image" "ubuntu" {
      + id          = (known after apply)
      + image_id    = (known after apply)
      + latest      = (known after apply)
      + name        = "ubuntu:latest"
      + output      = (known after apply)
      + repo_digest = (known after apply)
    }

Plan: 2 to add, 0 to change, 0 to destroy.
```

Step 5: Execute Terraform apply to apply the configuration, which will automatically create and run the Ubuntu Linux container based on our configuration. Using command : **“terraform apply”**

```
PS C:\Users\Admin\TerraformScripts\Docker> terraform apply

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
  + create

Terraform will perform the following actions:

  # docker_container.foo will be created
  + resource "docker_container" "foo" {
      + attach           = false
      + bridge           = (known after apply)
      + command          = [
          + "sleep",
          + "3600",
        ]
      + container_logs   = (known after apply)
      + entrypoint       = (known after apply)
      + env              = (known after apply)
      + exit_code        = (known after apply)
      + gateway          = (known after apply)
      + hostname         = (known after apply)
      + id               = (known after apply)
      + image            = (known after apply)
      + init             = (known after apply)
      + ip_address       = (known after apply)
      + ip_prefix_length = (known after apply)
      + ipc_mode         = (known after apply)
      + log_driver       = (known after apply)
      + logs             = false
      + must_run         = true
      + name             = "foo"
      + network_data     = (known after apply)
      + read_only        = false
      + remove_volumes   = true
      + restart          = "no"
      + rm               = false
      + runtime          = (known after apply)
      + security_opts    = (known after apply)
      + shm_size         = (known after apply)
      + start            = true
      + stdin_open       = false
      + stop_signal      = (known after apply)
      + stop_timeout     = (known after apply)
      + tty              = false

      + healthcheck (known after apply)

      + labels (known after apply)
    }

  # docker_image.ubuntu will be created
  + resource "docker_image" "ubuntu" {
      + id          = (known after apply)
      + image_id    = (known after apply)
      + latest      = (known after apply)
      + name        = "ubuntu:latest"
      + output      = (known after apply)
      + repo_digest = (known after apply)
    }

Plan: 2 to add, 0 to change, 0 to destroy.

Do you want to perform these actions?
  Terraform will perform the actions described above.
  Only 'yes' will be accepted to approve.

  Enter a value: yes
```

```
docker_image.ubuntu: Creating...
docker_image.ubuntu: Creation complete after 9s [id=sha256:edbfe74c41f8a3501ce542e137cf28ea04dd03e6df8c9d66519b6ad761c2598aubuntu:latest]
docker_container.foo: Creating...
docker_container.foo: Creation complete after 2s [id=01adf07e5918931fee9b90073726a03671037923dd92032ce0e15bbb764a6f24]

Apply complete! Resources: 2 added, 0 changed, 0 destroyed.
```

Docker images, Before Executing Apply step:

```
PS C:\Users\Admin\TerraformScripts\Docker> docker images
REPOSITORY                          TAG       IMAGE ID       CREATED         SIZE
```

Docker images, After Executing Apply step:

```
PS C:\Users\Admin\TerraformScripts\Docker> docker images
REPOSITORY                          TAG       IMAGE ID       CREATED         SIZE
ubuntu                              latest    edbfe74c41f8   3 weeks ago     78.1MB
```

Step 6: Execute Terraform destroy to delete the configuration, which will automatically delete the Ubuntu Container.

```
PS C:\Users\Admin\TerraformScripts\Docker> terraform destroy
docker_image.ubuntu: Refreshing state... [id=sha256:edbfe74c41f8a3501ce542e137cf28ea04dd03e6df8c9d66519b6ad761c2598aubuntu:latest]
docker_container.foo: Refreshing state... [id=01adf07e5918931fee9b90073726a03671037923dd92032ce0e15bbb764a6f24]

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
  - destroy

Terraform will perform the following actions:

  # docker_container.foo will be destroyed
  - resource "docker_container" "foo" {
      - attach            = false -> null
      - command           = [
          - "sleep",
          - "3600",
        ] -> null
      - cpu_shares        = 0 -> null
      - dns               = [] -> null
      - dns_opts          = [] -> null
      - dns_search        = [] -> null
      - entrypoint        = [] -> null
      - env               = [] -> null
      - gateway           = "172.17.0.1" -> null
      - group_add         = [] -> null
      - hostname          = "01adf07e5918" -> null
      - id                = "01adf07e5918931fee9b90073726a03671037923dd92032ce0e15bbb764a6f24" -> null
      - image             = "sha256:edbfe74c41f8a3501ce542e137cf28ea04dd03e6df8c9d66519b6ad761c2598a" -> null
      - init              = false -> null
      - ip_address        = "172.17.0.2" -> null
      - ip_prefix_length  = 16 -> null
      - ipc_mode          = "private" -> null
      - links             = [] -> null
      - log_driver        = "json-file" -> null
      - log_opts          = {} -> null
      - logs              = false -> null
      - max_retry_count   = 0 -> null
```

```
      - memory            = 0 -> null
      - memory_swap       = 0 -> null
      - must_run          = true -> null
      - name              = "foo" -> null
      - network_data      = [
          - {
              - gateway                   = "172.17.0.1"
              - global_ipv6_prefix_length = 0
              - ip_address                = "172.17.0.2"
              - ip_prefix_length          = 16
              - network_name              = "bridge"
                # (2 unchanged attributes hidden)
            },
        ] -> null
      - network_mode      = "default" -> null
      - privileged        = false -> null
      - publish_all_ports = false -> null
      - read_only         = false -> null
      - remove_volumes    = true -> null
      - restart           = "no" -> null
      - rm                = false -> null
      - runtime           = "runc" -> null
      - security_opts     = [] -> null
      - shm_size          = 64 -> null
      - start             = true -> null
      - stdin_open        = false -> null
      - stop_timeout      = 0 -> null
      - storage_opts      = {} -> null
      - sysctls           = {} -> null
      - tmpfs             = {} -> null
      - tty               = false -> null
        # (8 unchanged attributes hidden)
    }
```

```
  # docker_image.ubuntu will be destroyed
  - resource "docker_image" "ubuntu" {
      - id          = "sha256:edbfe74c41f8a3501ce542e137cf28ea04dd03e6df8c9d66519b6ad761c2598aubuntu:latest" -> null
      - image_id    = "sha256:edbfe74c41f8a3501ce542e137cf28ea04dd03e6df8c9d66519b6ad761c2598a" -> null
      - latest      = "sha256:edbfe74c41f8a3501ce542e137cf28ea04dd03e6df8c9d66519b6ad761c2598a" -> null
      - name        = "ubuntu:latest" -> null
      - repo_digest = "ubuntu@sha256:8a37d68f4f73ebf3d4efafbcf66379bf3728902a8038616808f04e34a9ab63ee" -> null
    }

Plan: 0 to add, 0 to change, 2 to destroy.

Do you really want to destroy all resources?
  Terraform will destroy all your managed infrastructure, as shown above.
  There is no undo. Only 'yes' will be accepted to confirm.

  Enter a value: yes

docker_container.foo: Destroying... [id=01adf07e5918931fee9b90073726a03671037923dd92032ce0e15bbb764a6f24]
docker_container.foo: Destruction complete after 0s
docker_image.ubuntu: Destroying... [id=sha256:edbfe74c41f8a3501ce542e137cf28ea04dd03e6df8c9d66519b6ad761c2598aubuntu:latest]
docker_image.ubuntu: Destruction complete after 1s

Destroy complete! Resources: 2 destroyed.
```

Docker images After Executing Destroy step

```
PS C:\Users\Admin\TerraformScripts\Docker> docker images
REPOSITORY                          TAG       IMAGE ID       CREATED         SIZE
```

ADVANCE DEVOPS EXP 7

Niraj S. Kothawade
D15A - 24

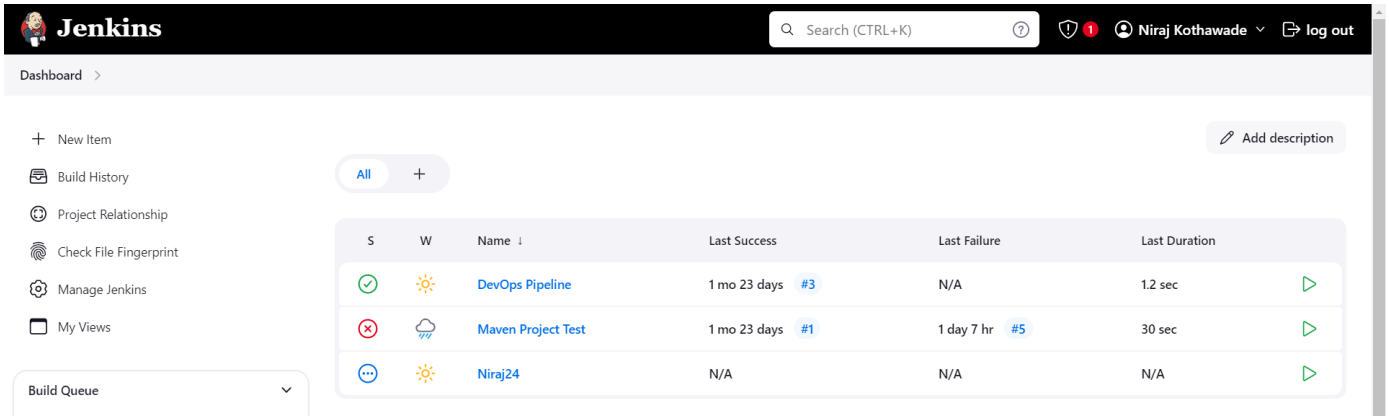
Aim: To understand Static Analysis SAST process and learn to integrate Jenkins SAST to SonarQube/GitLab.

Integrating Jenkins with SonarQube:

- Jenkins installed
- Docker Installed (for SonarQube)
- SonarQube Docker Image

Steps to integrate Jenkins with SonarQube

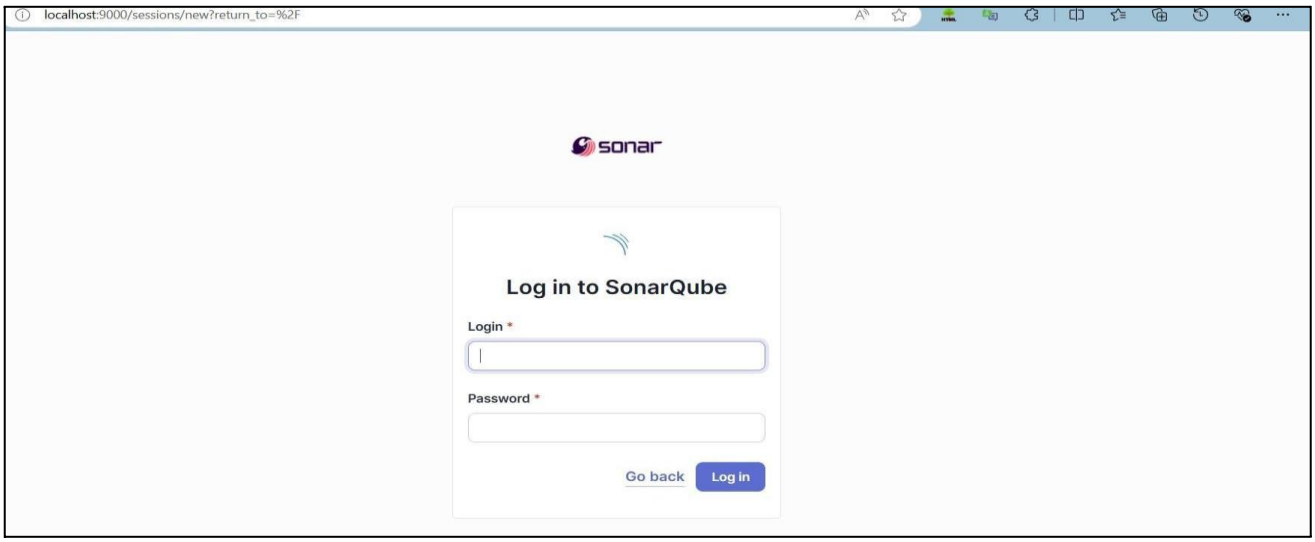
1. Open up Jenkins Dashboard on localhost, port 8080 or whichever port it is at for you.



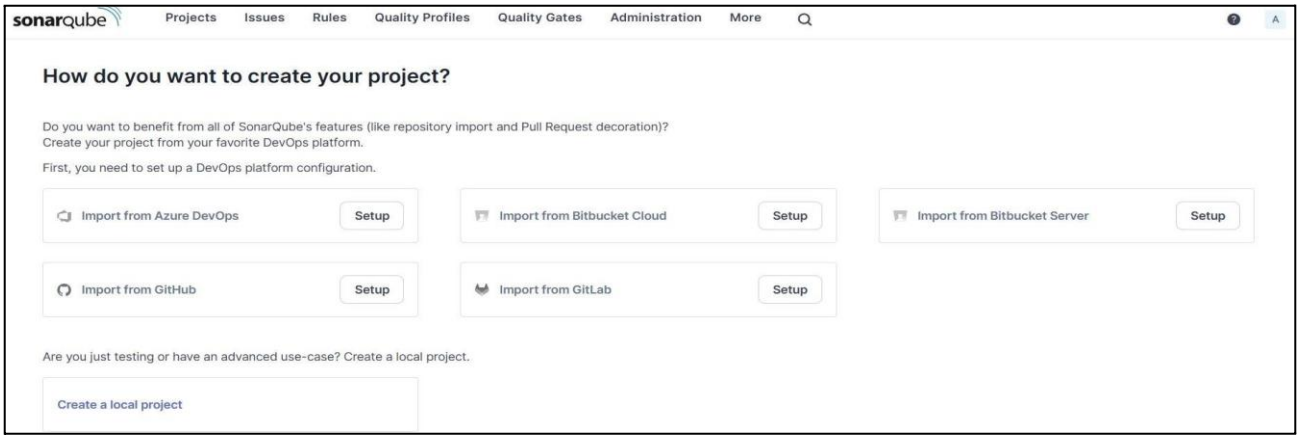
2. Run SonarQube in a Docker container using this command -
docker run -d --name sonarqube -e SONAR_ES_BOOTSTRAP_CHECKS_DISABLE=true -p 9000:9000 sonarqube:latest

```
PS C:\Windows\system32> docker run -d --name sonarqube -e SONAR_ES_BOOTSTRAP_CHECKS_DISABLE=true -p 9000:9000 sonarqube:latest
Unable to find image 'sonarqube:latest' locally
latest: Pulling from library/sonarqube
7478e0ac0f23: Pull complete
90a925ab929a: Pull complete
7d9a34308537: Pull complete
80338217a4ab: Pull complete
1a5fd5c7e184: Pull complete
7b87d6fa783d: Pull complete
bd819c9b5ead: Pull complete
4f4fb700ef54: Pull complete
Digest: sha256:72e9feec71242af83faf65f95a40d5e3bb2822a6c3b2cda8568790f3d31aecde
Status: Downloaded newer image for sonarqube:latest
5ab3928e5e27607e3661d129731e4e600a9019574c7dc2767aa9b3bfdaa941be
```

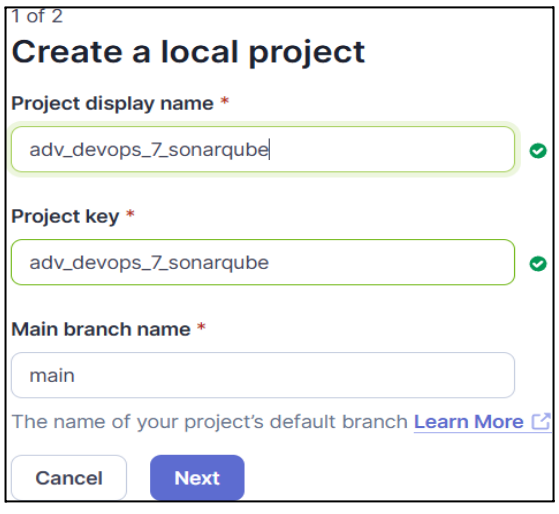
3. Once the container is up and running, you can check the status of SonarQube at localhost port 9000.

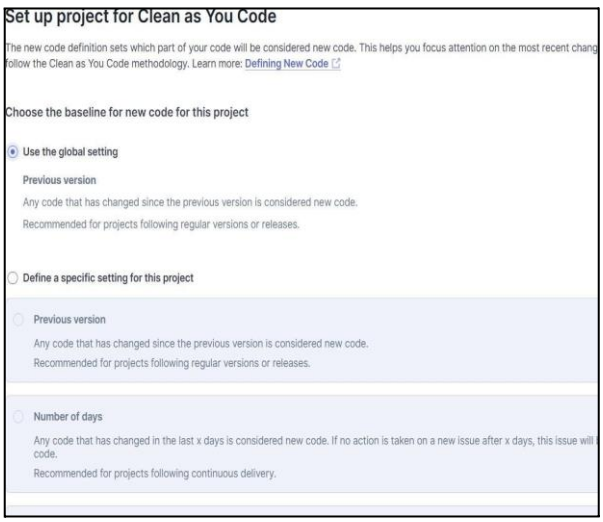


4. Login to SonarQube using username admin and password admin.

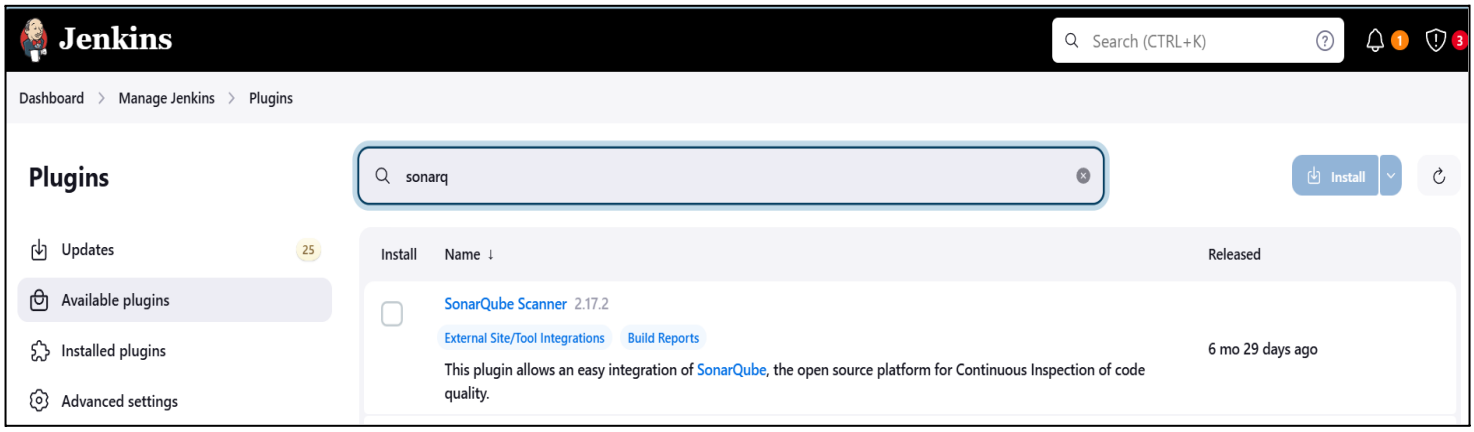


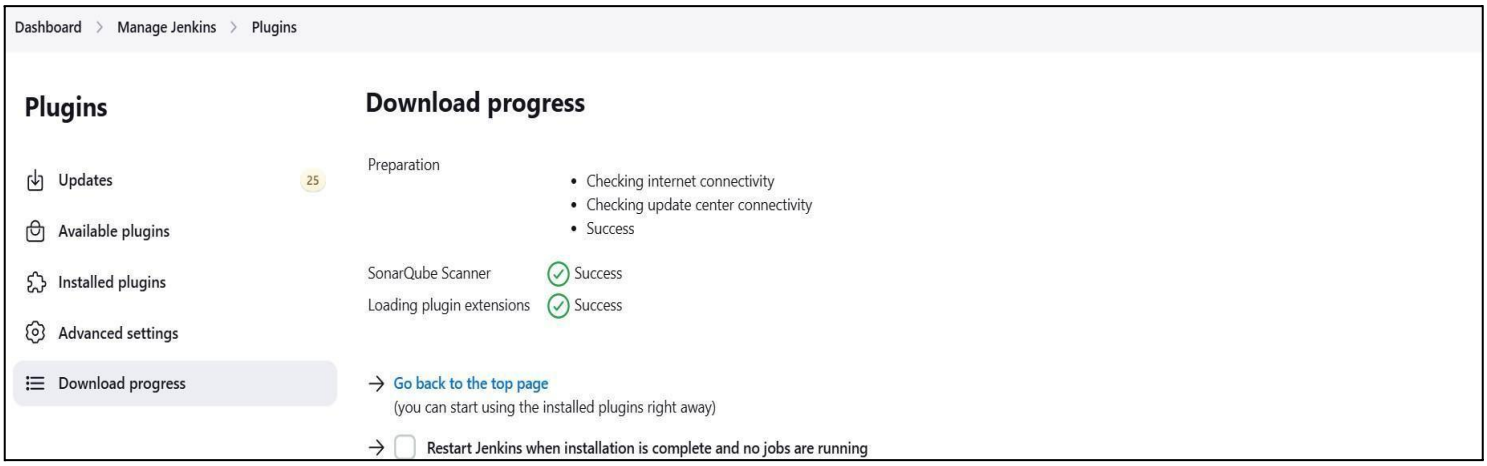
5. Create a manual project in SonarQube with the name sonarqube





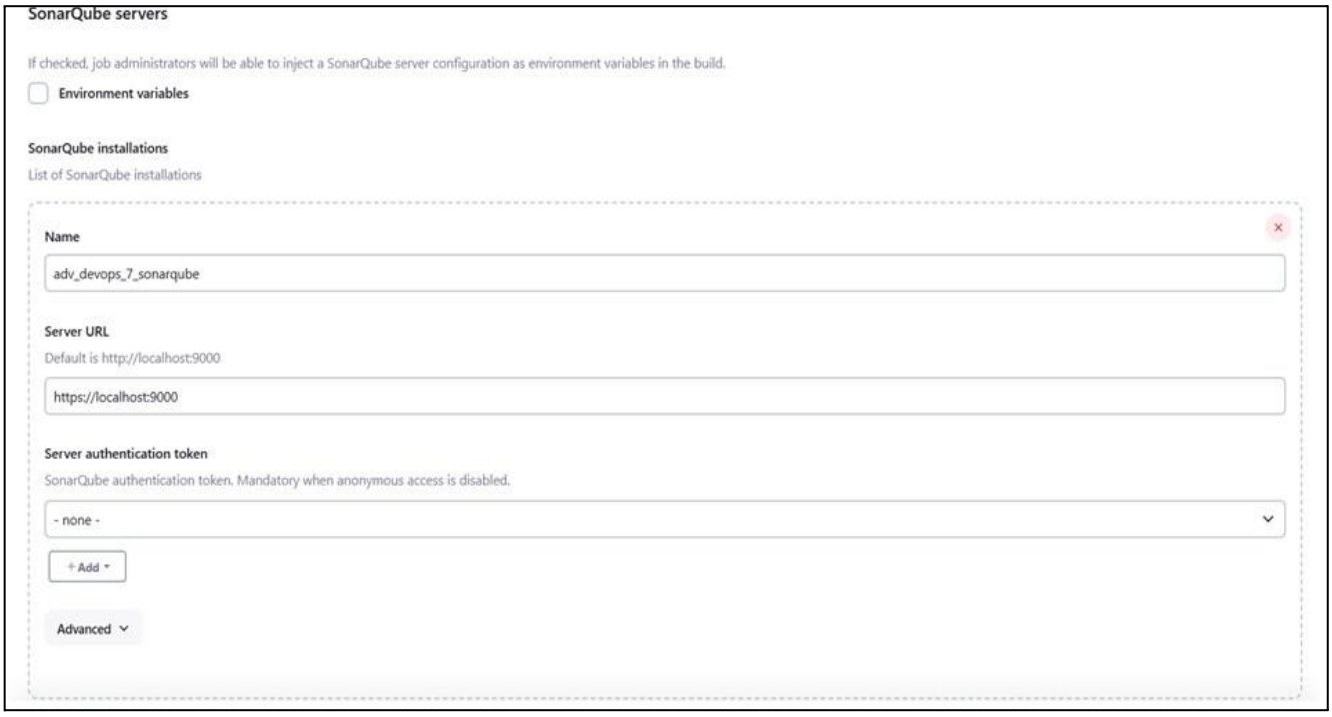
Setup the project and come back to Jenkins Dashboard.
Go to Manage Jenkins and search for SonarQube Scanner for Jenkins and install it.





6. Under Jenkins ‘Manage Jenkins’ then go to ‘system’, scroll and look for **SonarQube Servers**
and enter the details.
Enter the Server Authentication token if needed.

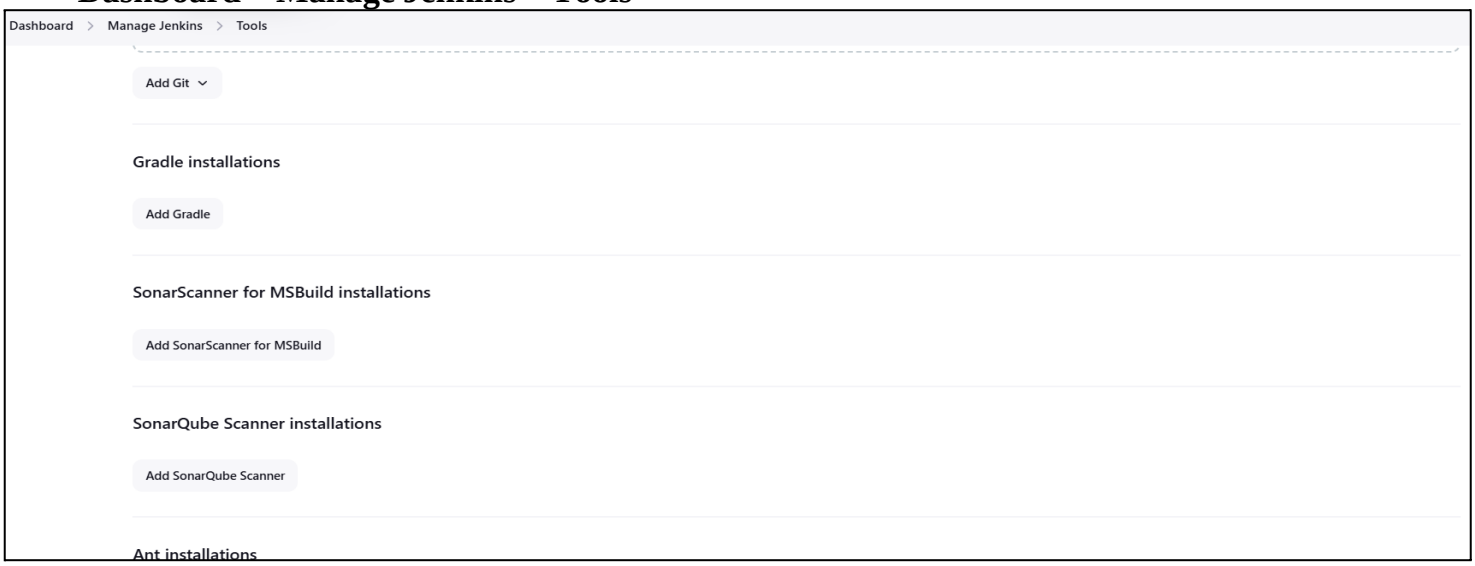
In SonarQube installations: Under **Name** add <project name of sonarqube>,here we have named it as **adv_devops_7_sonarqube**
In **Server URL** Default is **http://localhost:9000**


SonarQube servers
If checked, job administrators will be able to inject a SonarQube server configuration as environment variables in the build.
Environment variables
SonarQube installations
List of SonarQube installations
Name
adv_devops_7_sonarqube
Server URL
Default is http://localhost:9000
https://localhost:9000
Server authentication token
SonarQube authentication token. Mandatory when anonymous access is disabled.
- none -
+ Add
Advanced

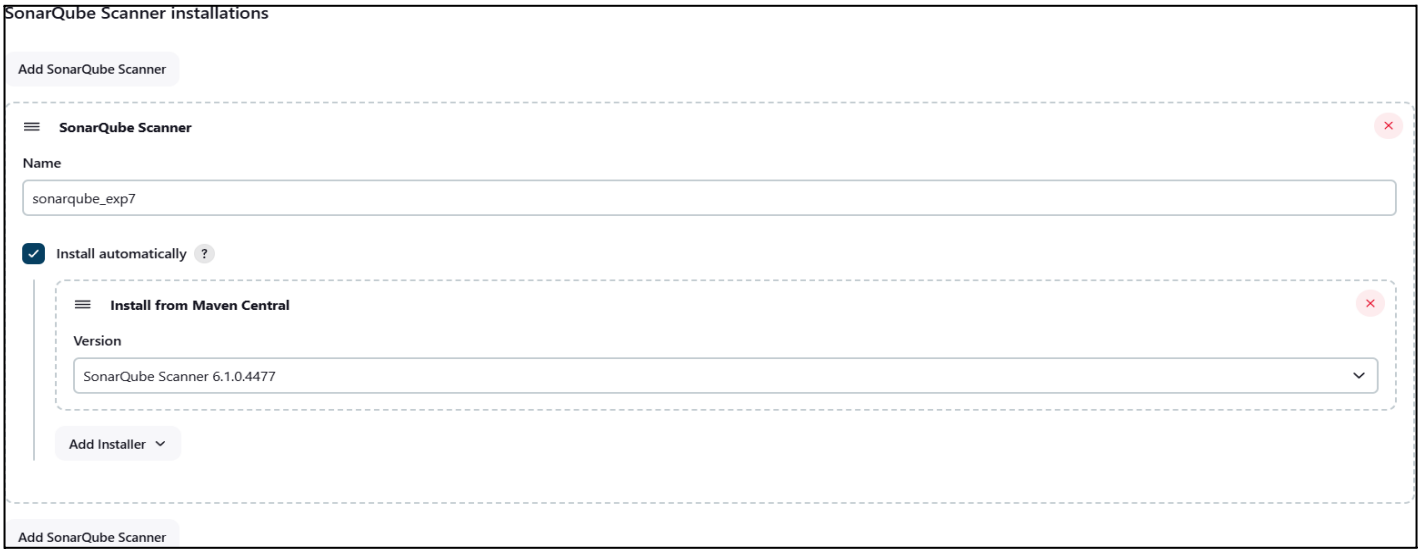
7. Search for SonarQube Scanner under Global Tool Configuration.

Choose the latest configuration and choose Install automatically.

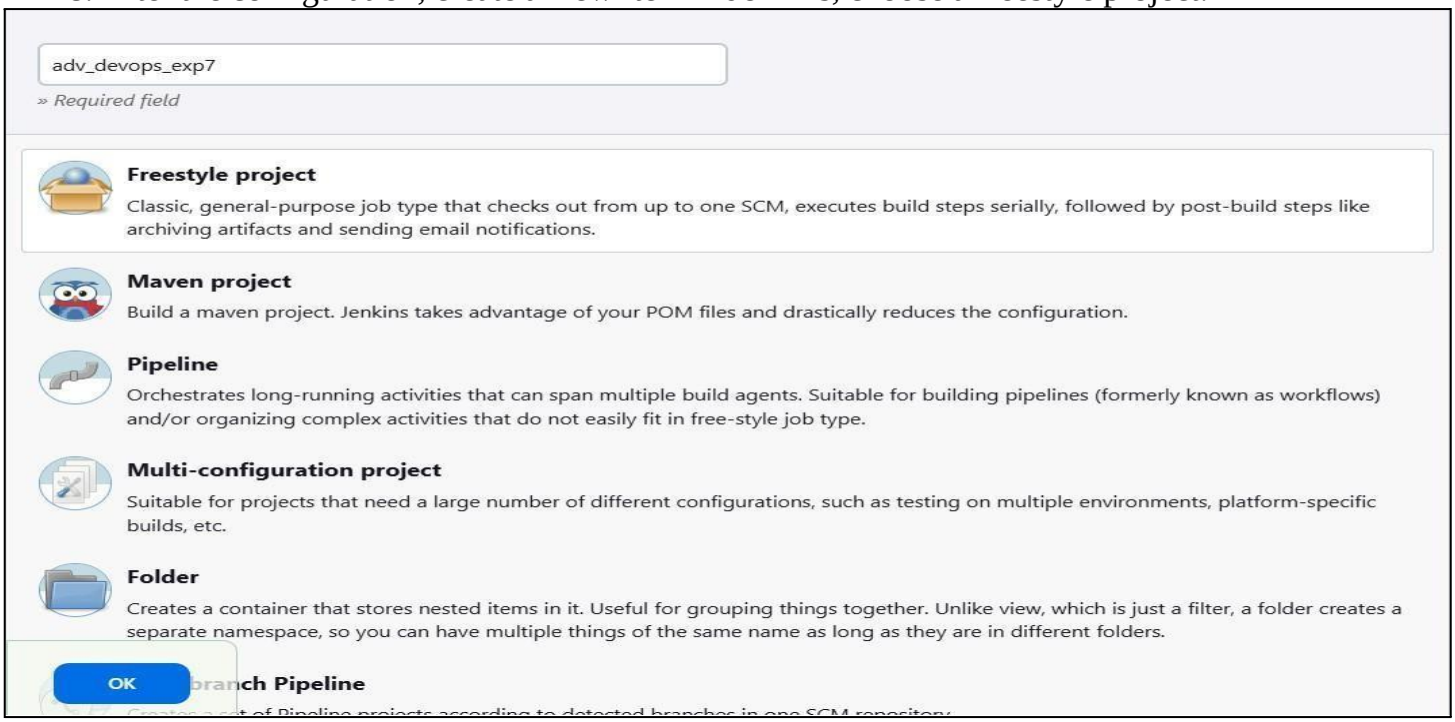
Dashboard > Manage Jenkins > Tools



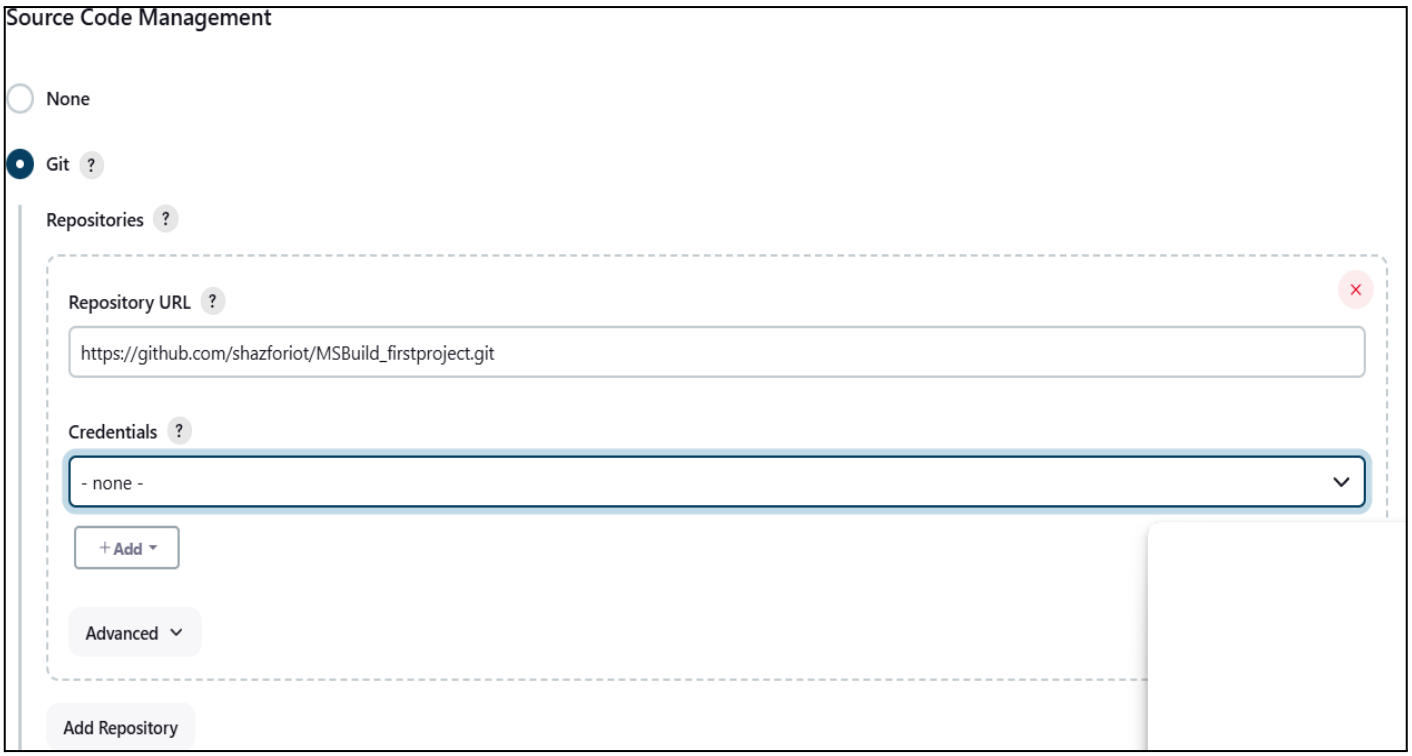
Check the “Install automatically” option. → Under name any name as identifier → Check the “Install automatically” option.



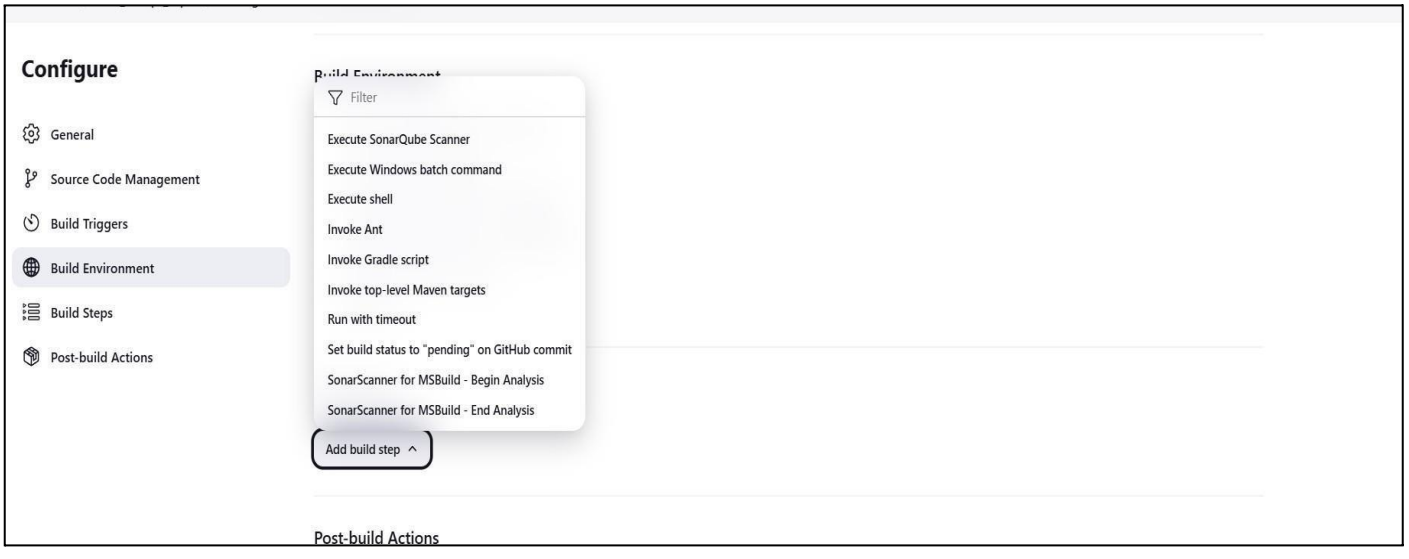
8. After the configuration, create a New Item in Jenkins, choose a freestyle project.



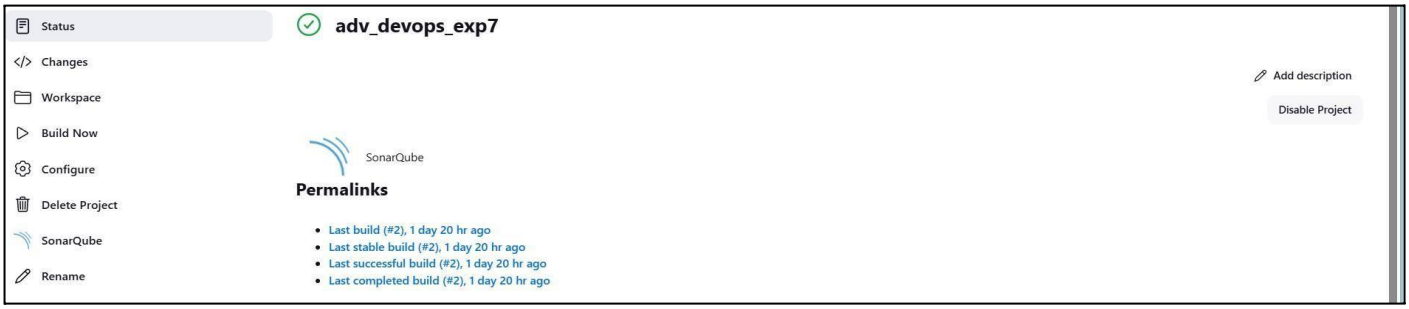
9. Choose this GitHub repository in Source Code Management.
https://github.com/shazforiot/MSBuild_firstproject.git
It is a sample hello-world project with no vulnerabilities and issues, just to test the integration.



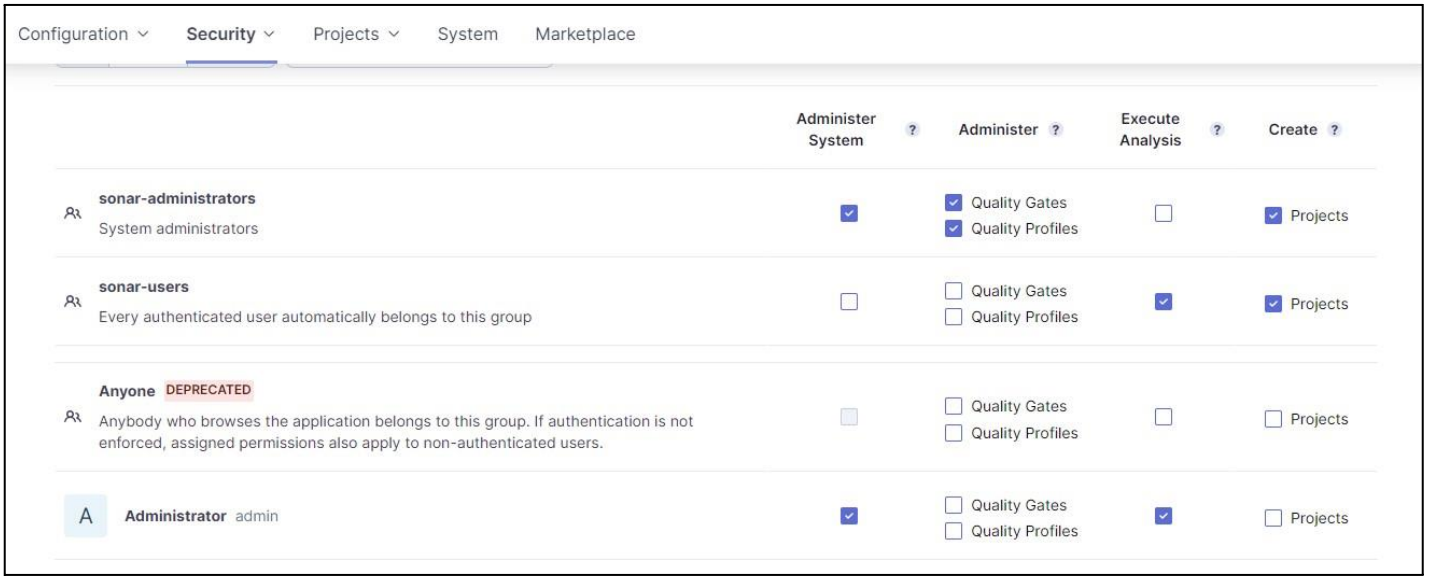
10. Under **Select project → Configuration → Build steps → Execute SonarQube Scanner**, enter these Analysis properties. Mention the SonarQube Project Key, Login, Password, Source path and Host URL.



Then save



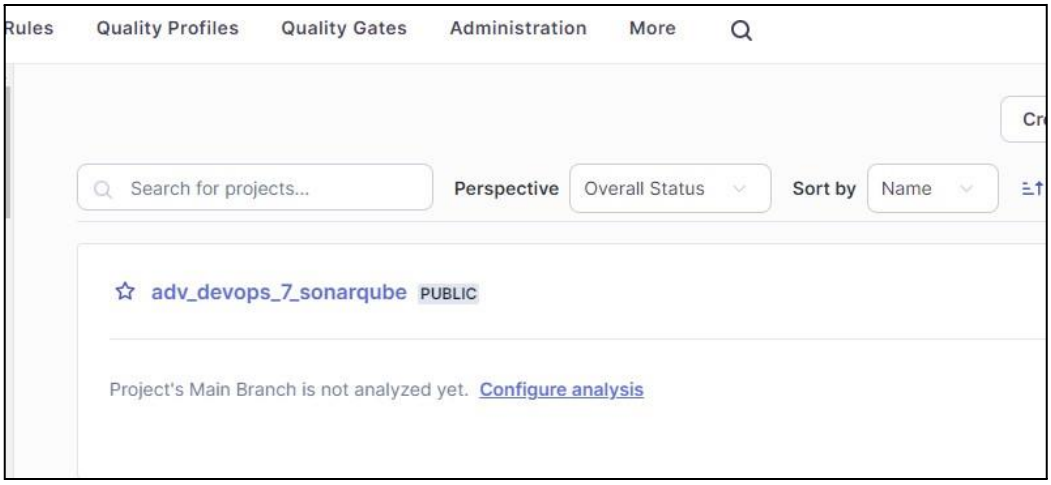
11. Go to http://localhost:9000/<user_name>/permissions and allow Execute Permissions to the Admin user



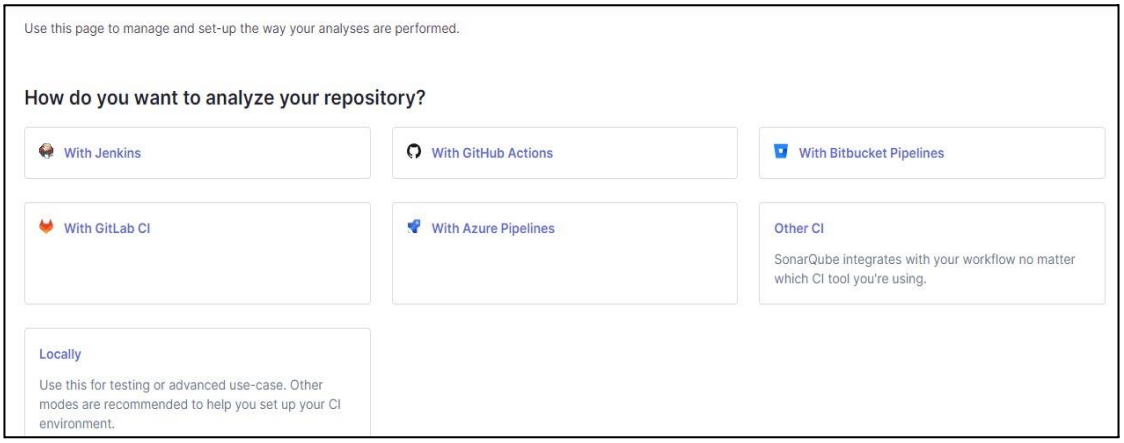
IF CONSOLE OUTPUT FAILED:

Step 1: Generate a New Authentication Token in SonarQube

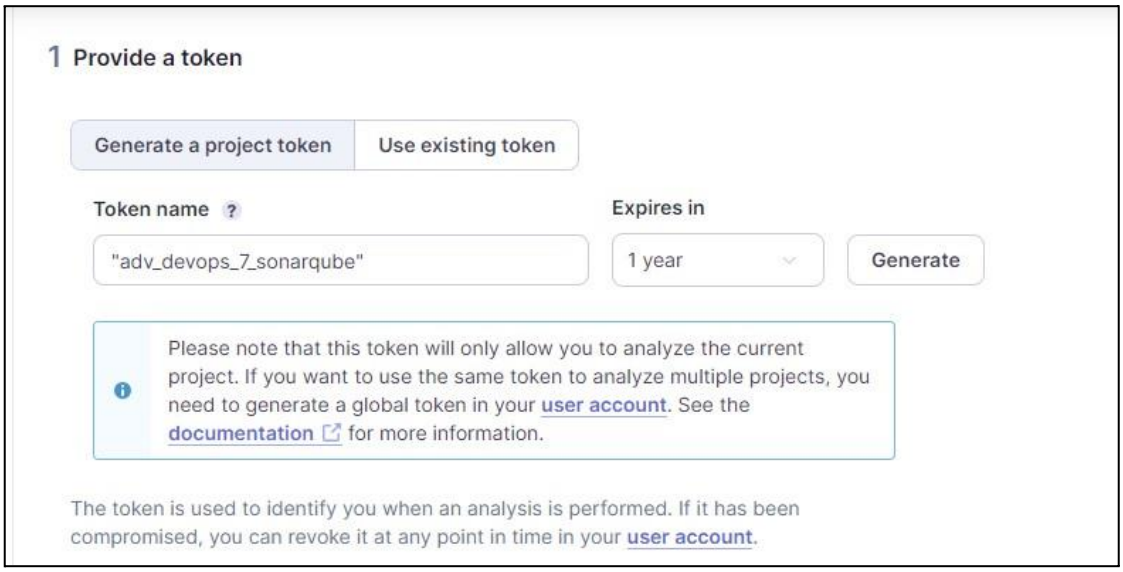
1. **Login to SonarQube:**
    - Open your browser and go to **http://localhost:9000**.
    - Log in with your admin credentials (default username is **admin**, and the password is either **admin** or your custom password if it was changed).
2. **Generate a New Token:**
    - Go to the project that you have created on SonarQube.



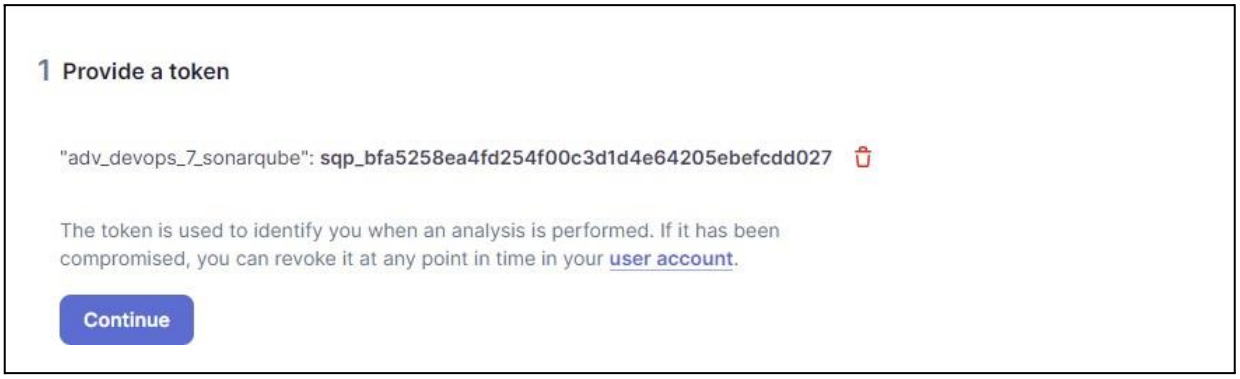
    - Click on **Locally**



    - Further,Generate a Project token with the following details and click on generate.

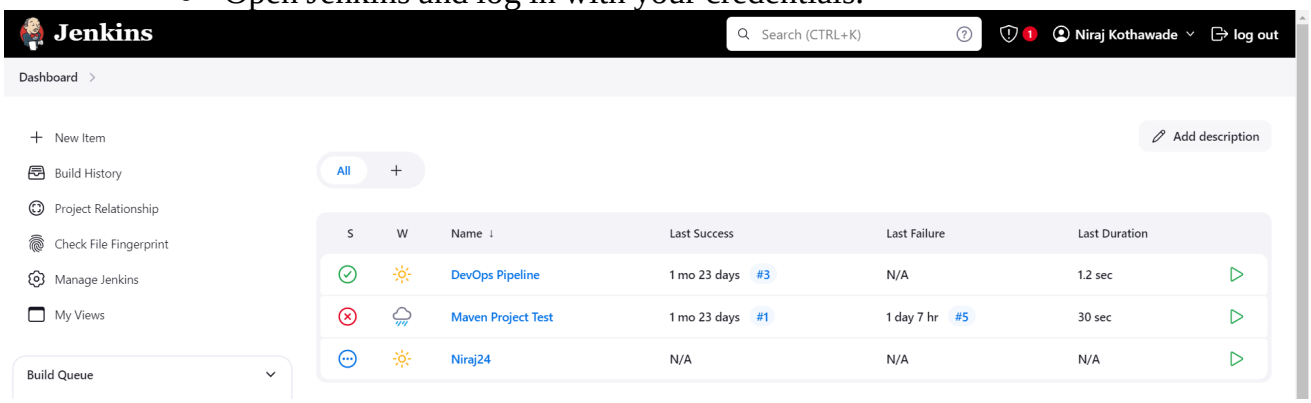


- Copy the token you get here and save it securely as we would need it in Jenkins.



Step 2: Update the Token in Jenkins

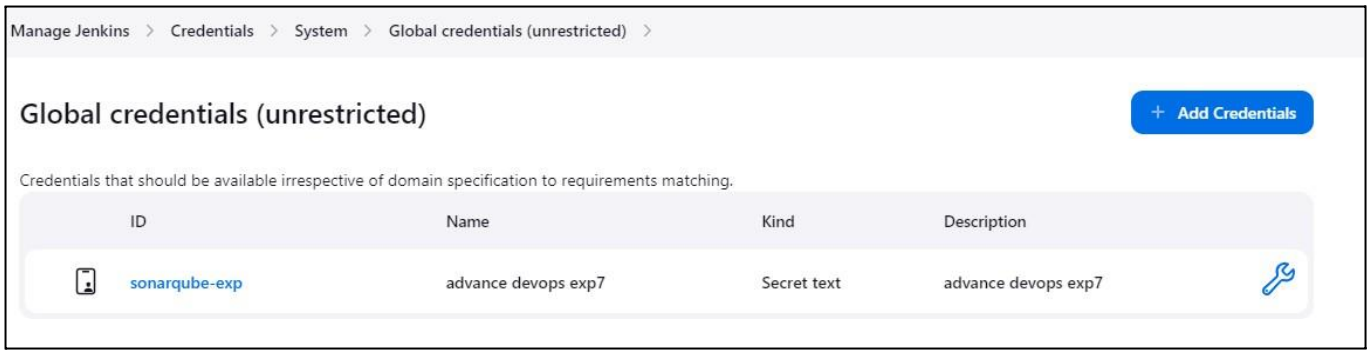
1. **Go to Jenkins Dashboard:**
   - Open Jenkins and log in with your credentials.



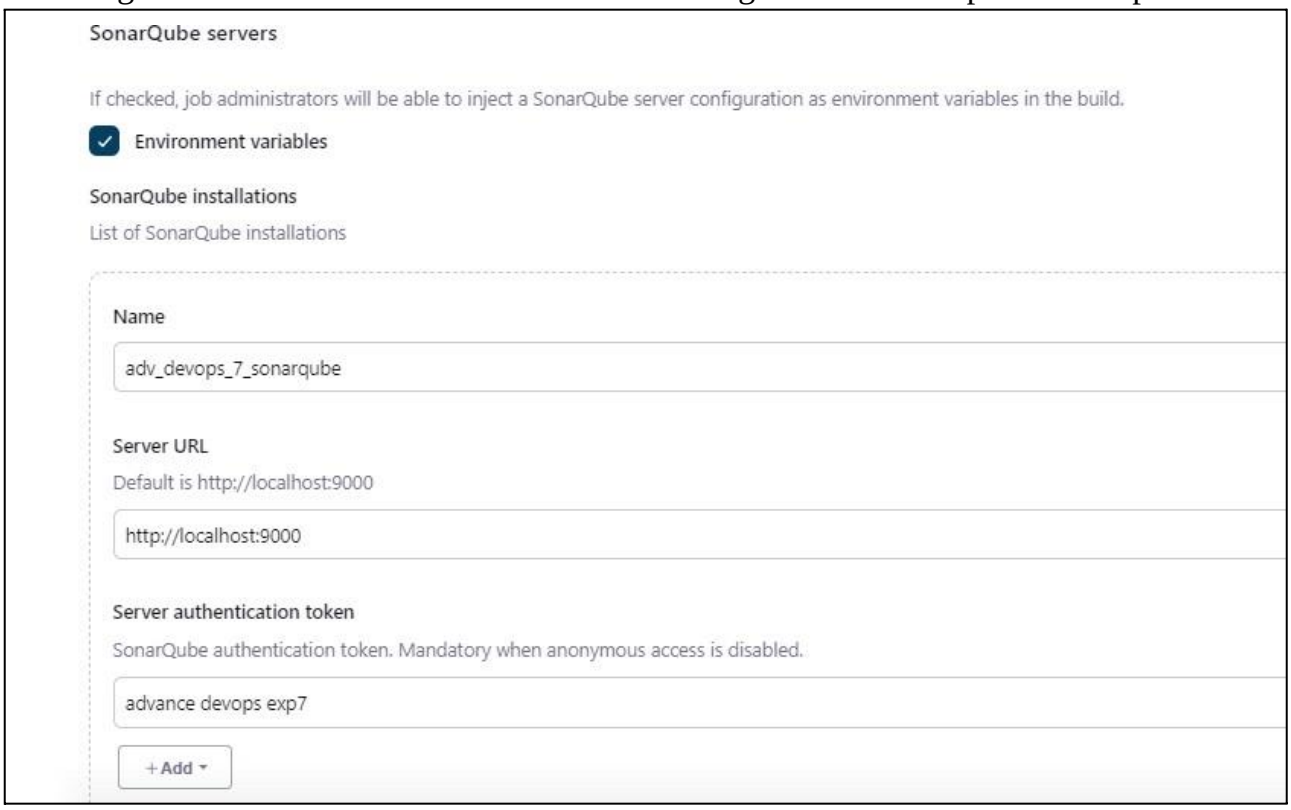
2. Go to Dashboard—>Manage Jenkins—>Credentials

3. Click on **global** under the domains part of Stores scoped to Jenkins section.Further click on add credentials.Proceed with the following details.Make sure to copy the token generated earlier in sonarqube and give any suitable name as the ID.

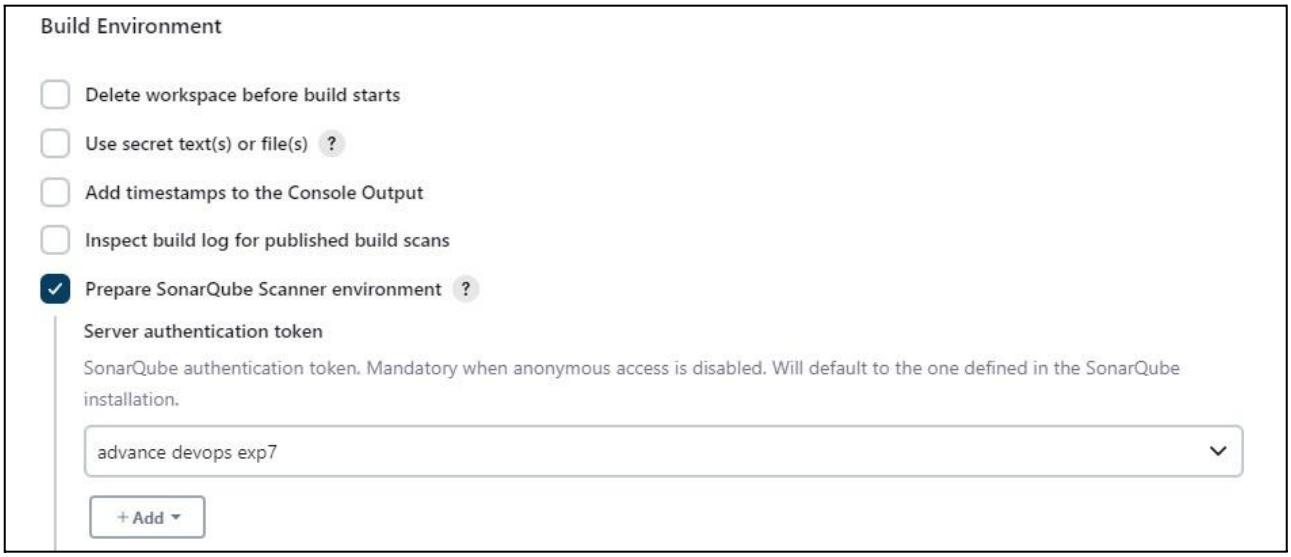
4.After clicking on create we see that the given token has been added in Jenkins credentials.



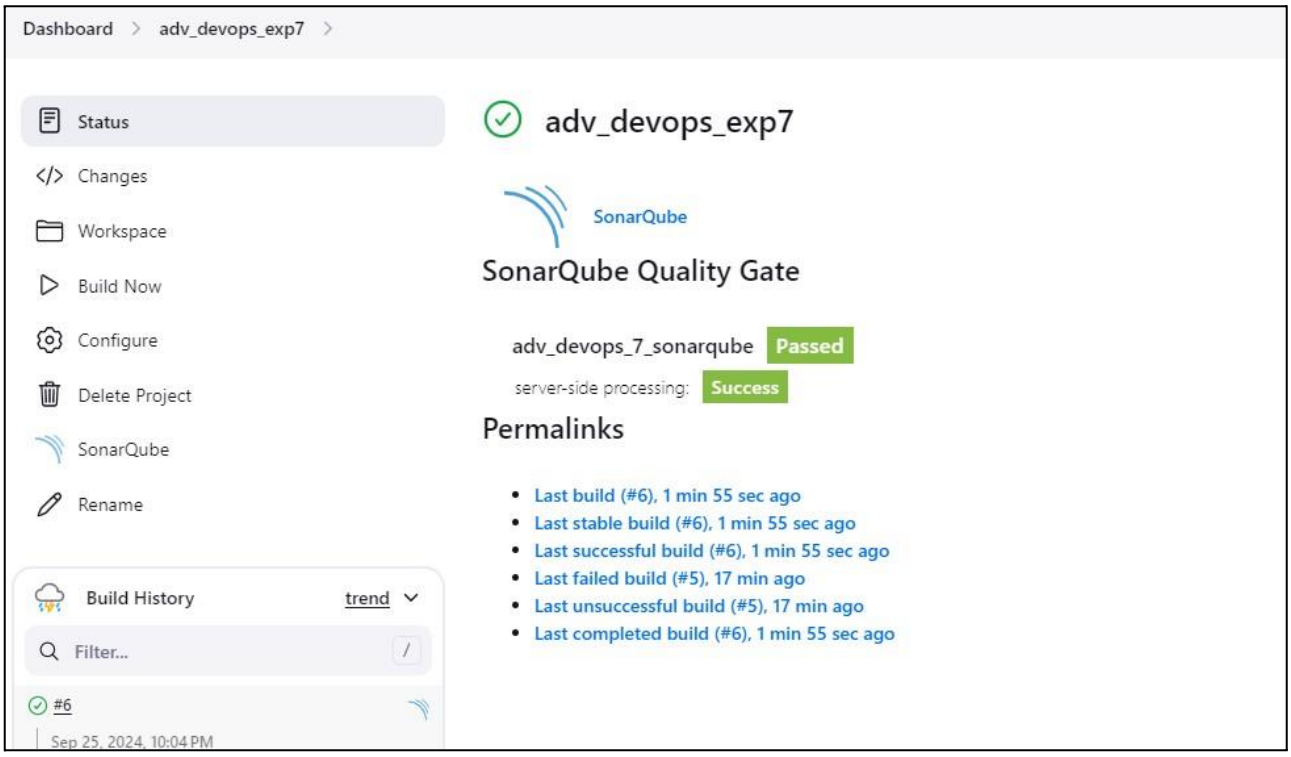
5.Now go to **Manage Jenkins—>System—>SonarQube servers** and proceed with the following details. Reference the authentication token generated in the previous step.



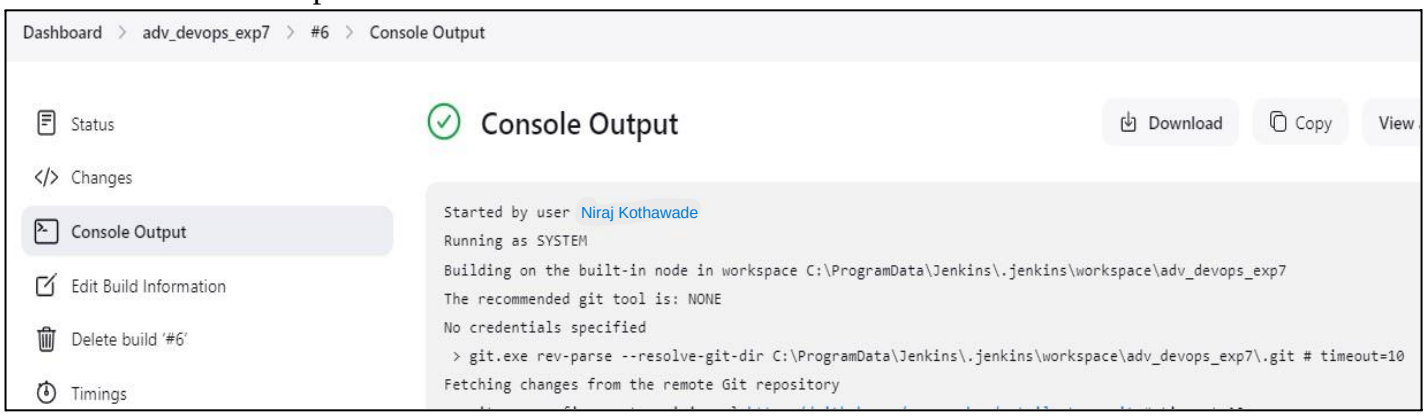
6.Check the SonarQube Scanner Environment and add the server authentication token



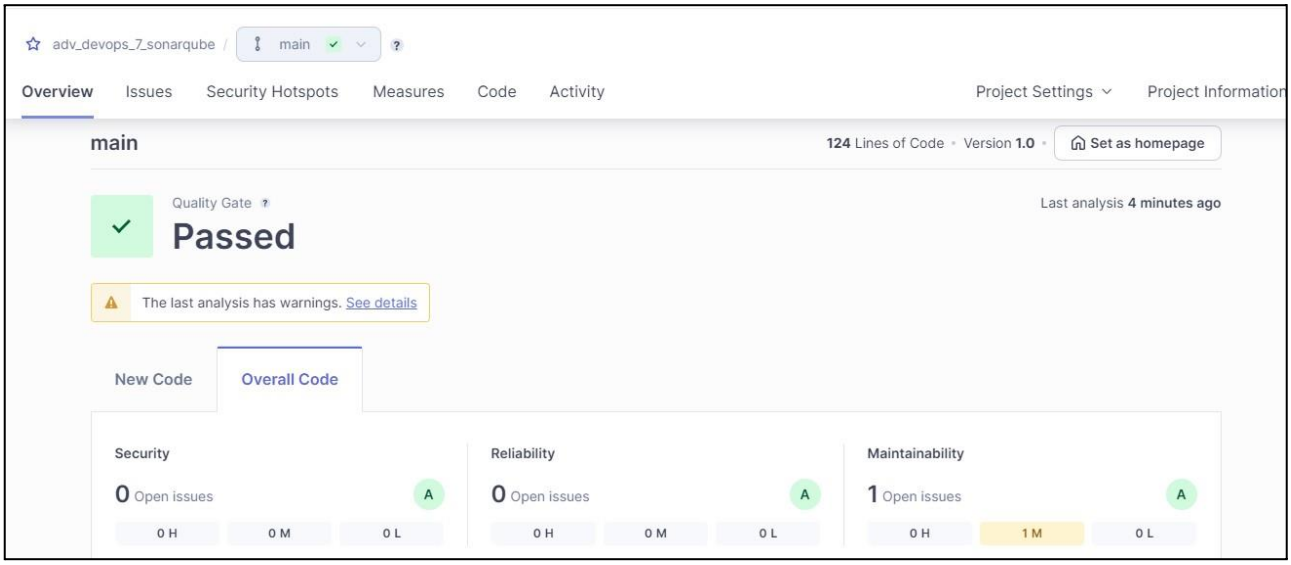
12. Run the Jenkins build.



Check the console Output



13. Once the build is complete, check project on SonarQube



In this way, we have integrated Jenkins with SonarQube for SAST.

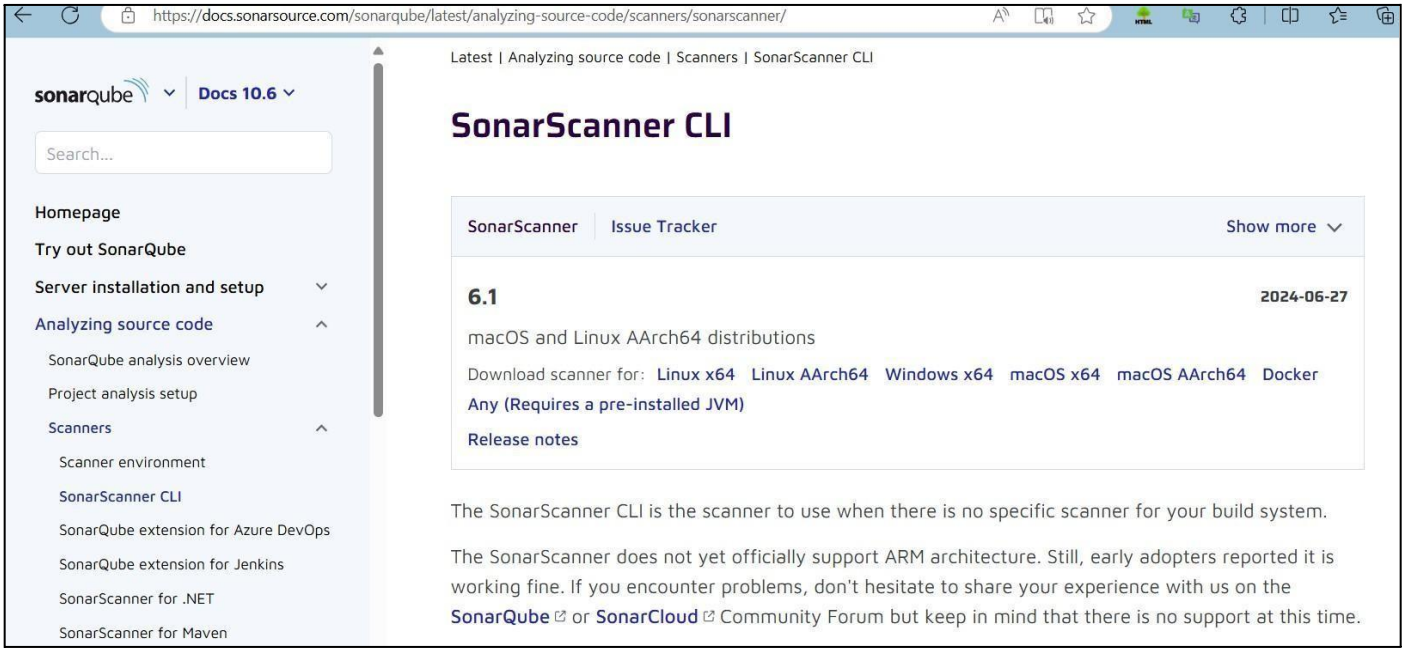
ADVANCE DEVOPS EXP 8

Niraj S. Kothawade
D15A - 24

Aim: Create a Jenkins CICD Pipeline with SonarQube / GitLab Integration to perform a static analysis of the code to detect bugs, code smells, and security vulnerabilities on a sample Web / Java / Python application.

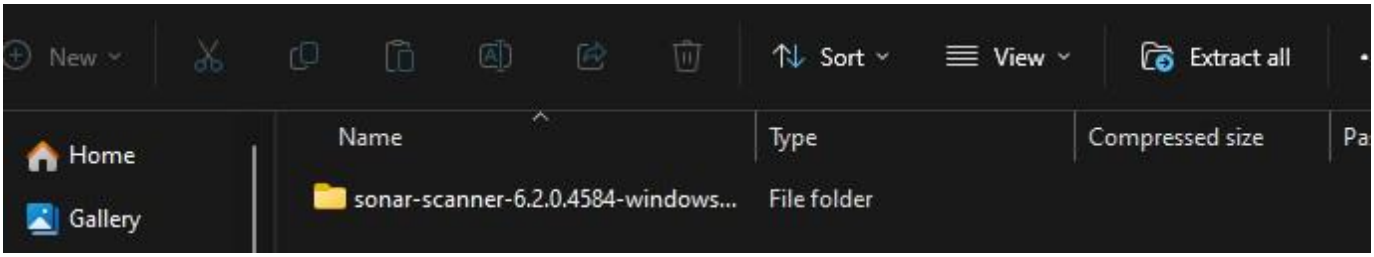
Step 1: Download sonar scanner

https://docs.sonarsource.com/sonarqube/latest/analyzing-source-code/scanners/sonarscanner



ner/ Visit this link and download the sonarqube scanner CLI.

Extract the downloaded zip file in a folder.

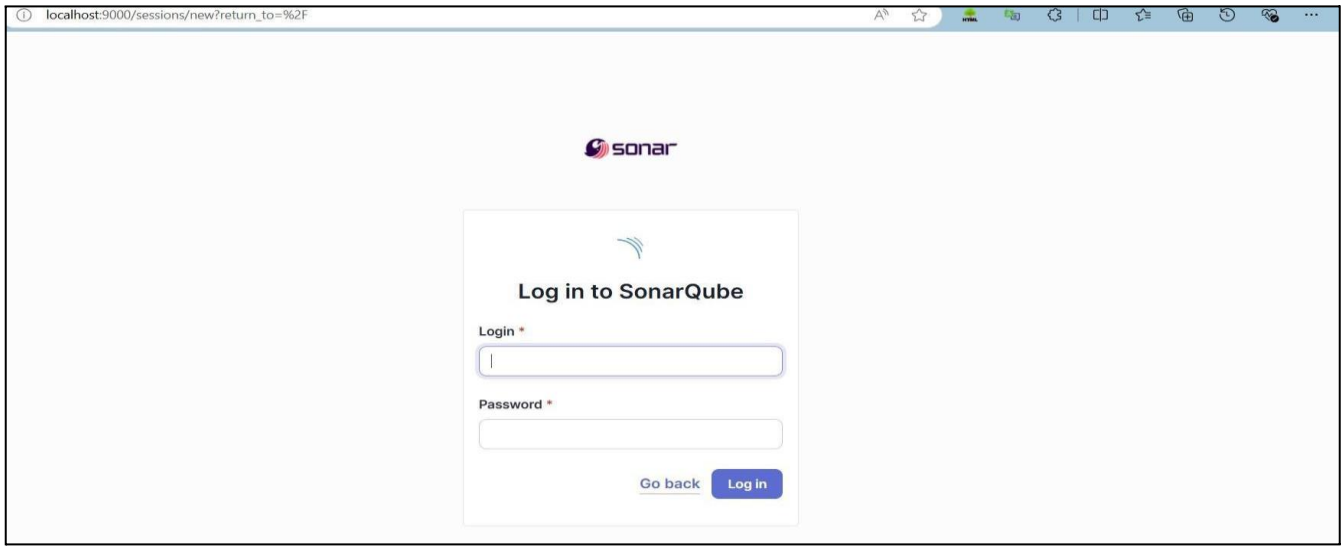


1. Install sonarqube image

Command: **docker pull sonarqube**

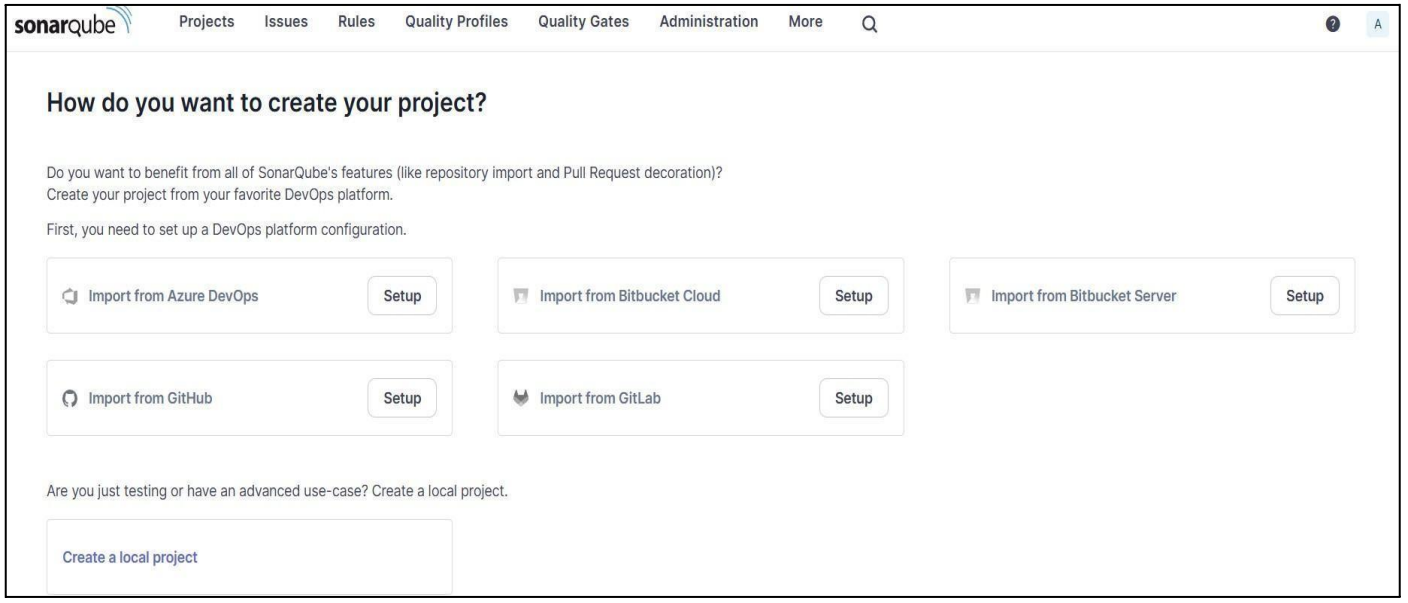
```
C:\Windows\System32>docker pull sonarqube
Using default tag: latest
latest: Pulling from library/sonarqube
Digest: sha256:72e9feec71242af83faf65f95a40d5e3bb2822a6c3b2cda8568790f3d31aecde
Status: Image is up to date for sonarqube:latest
docker.io/library/sonarqube:latest
```

2. Once the container is up and running, you can check the status of

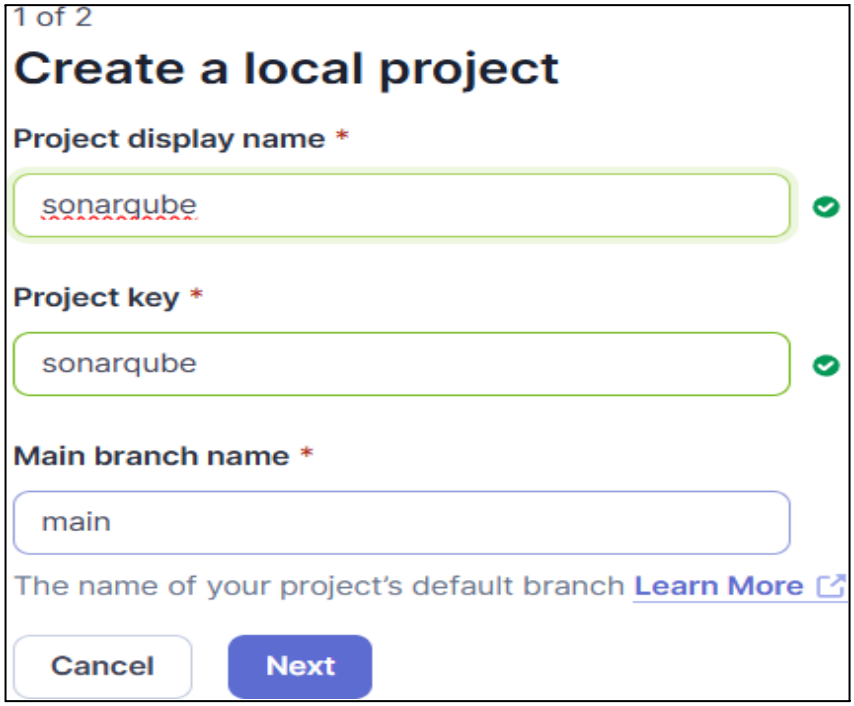


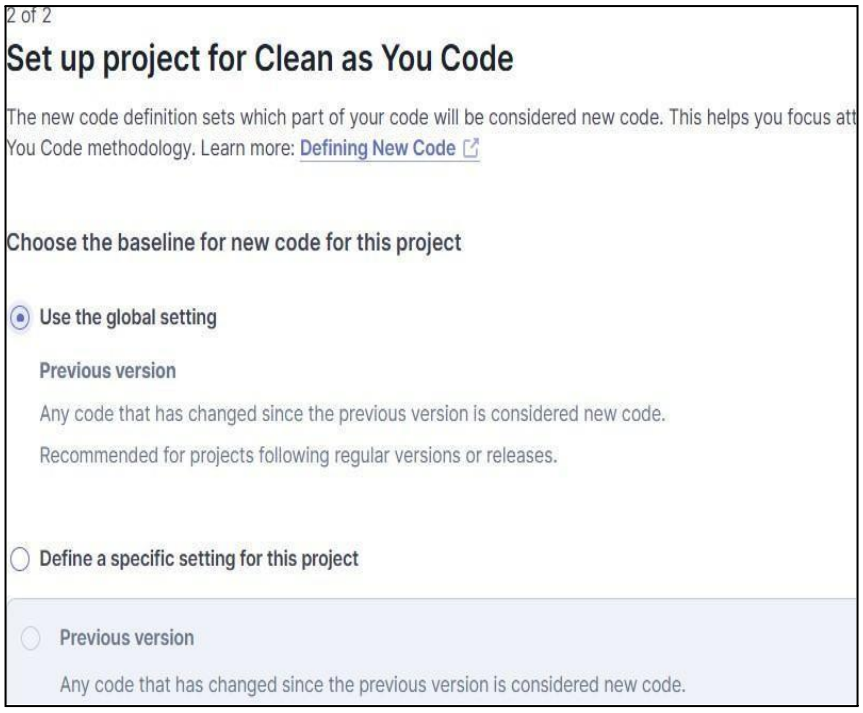
SonarQube at localhost port 9000.

3. Login to SonarQube using username admin and password admin.

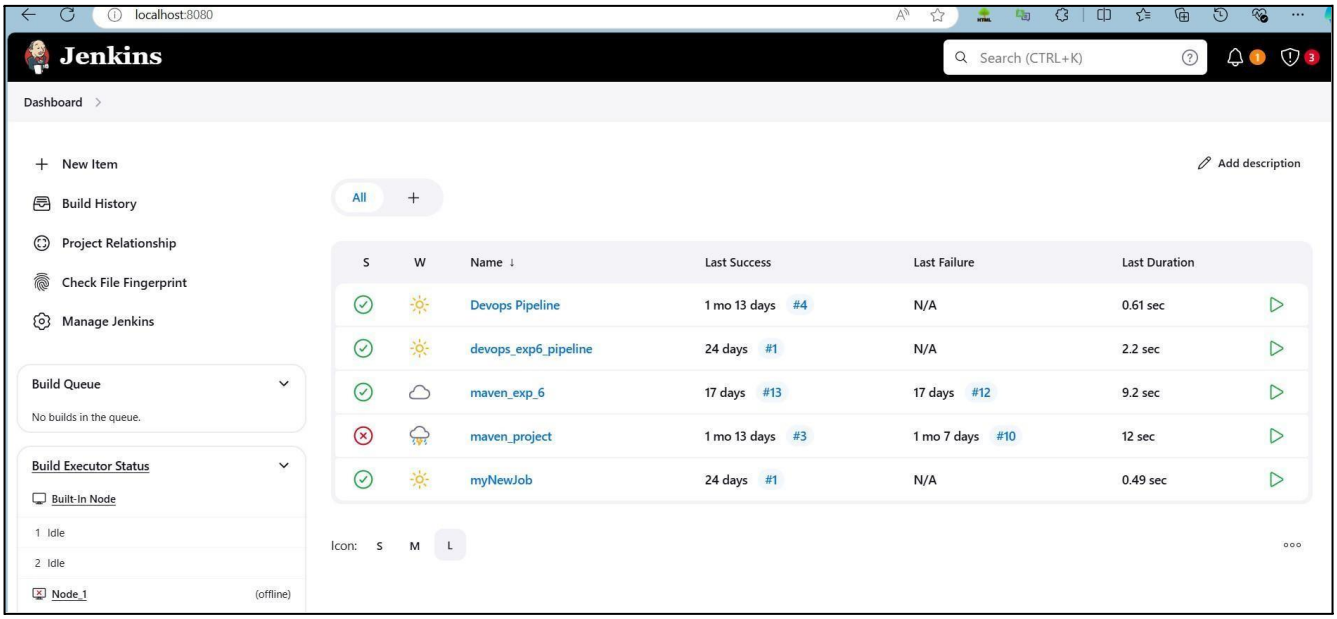


4. Create a manual project in SonarQube with the name sonarqube

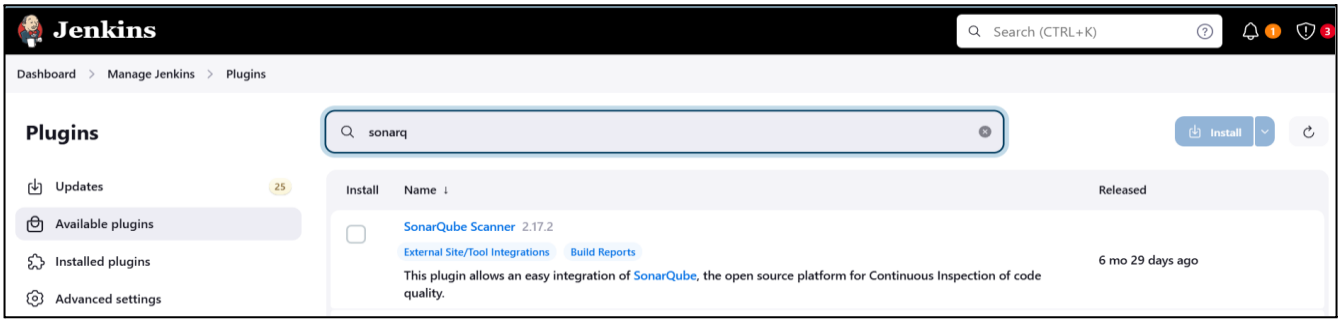


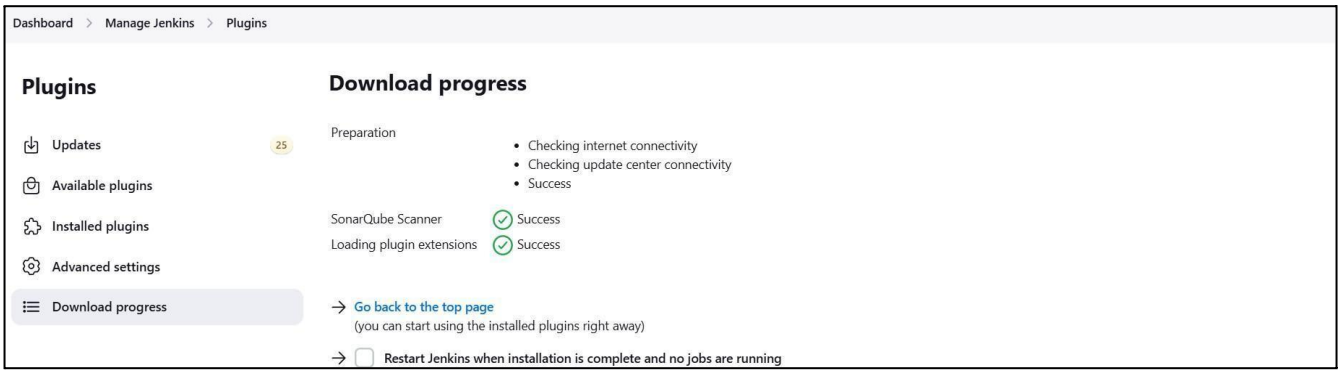


5. Open up Jenkins Dashboard on localhost, port 8080 or whichever port it is at for you.



6. Go to Manage Jenkins and search for SonarQube Scanner for Jenkins and install it.

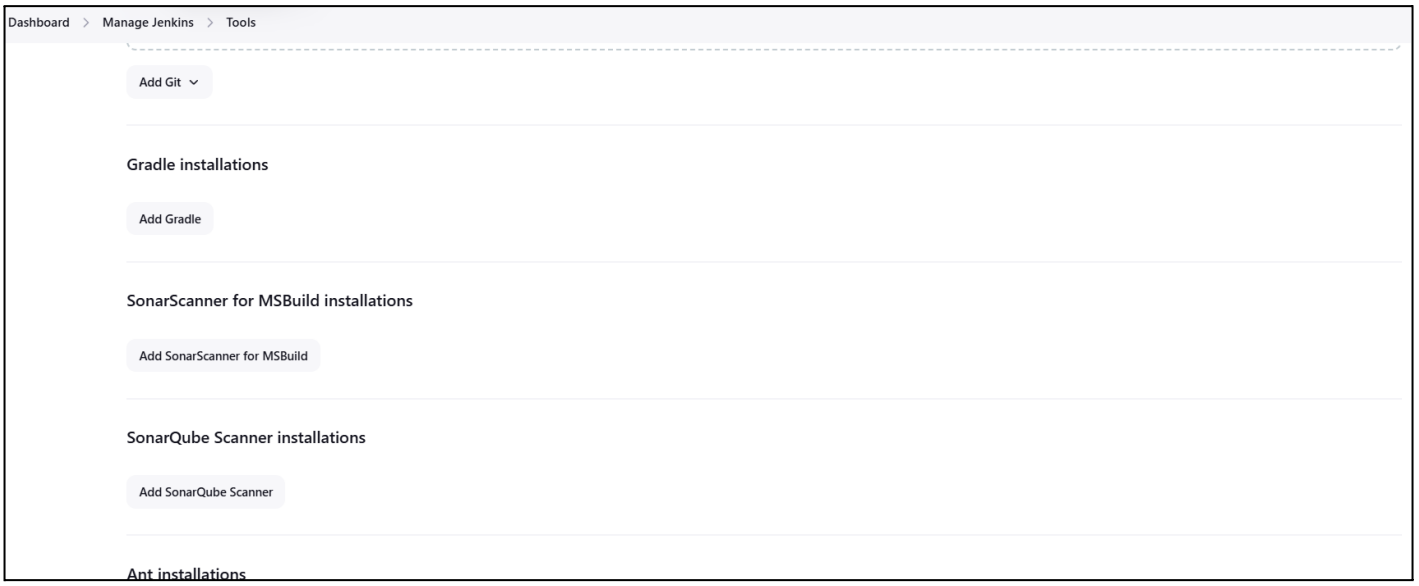




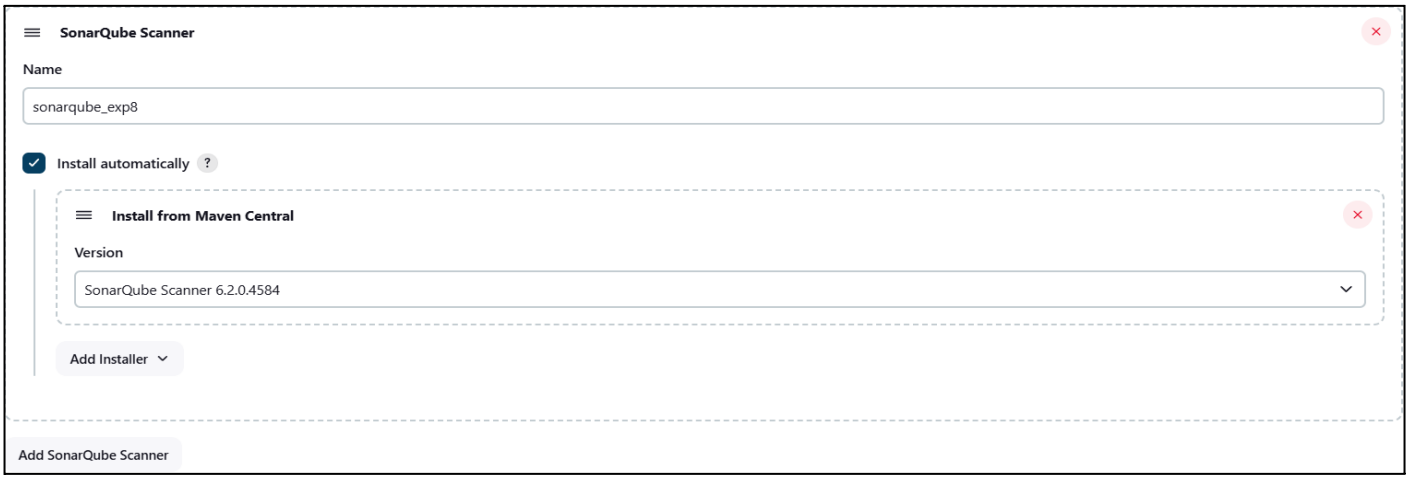
7. Under Jenkins ‘Manage Jenkins’ then go to ‘system’, scroll and look for **SonarQube Servers**
and enter the details.
Enter the Server Authentication token if needed.

In SonarQube installations: Under **Name** add <project name of sonarqube> for me **adv_devops_7_sonarqube**
In **Server URL** Default is **http://localhost:9000**

8. Search for SonarQube Scanner under Global Tool Configuration.
Choose the latest configuration and choose Install automatically.
Dashboard > Manage Jenkins > Tools

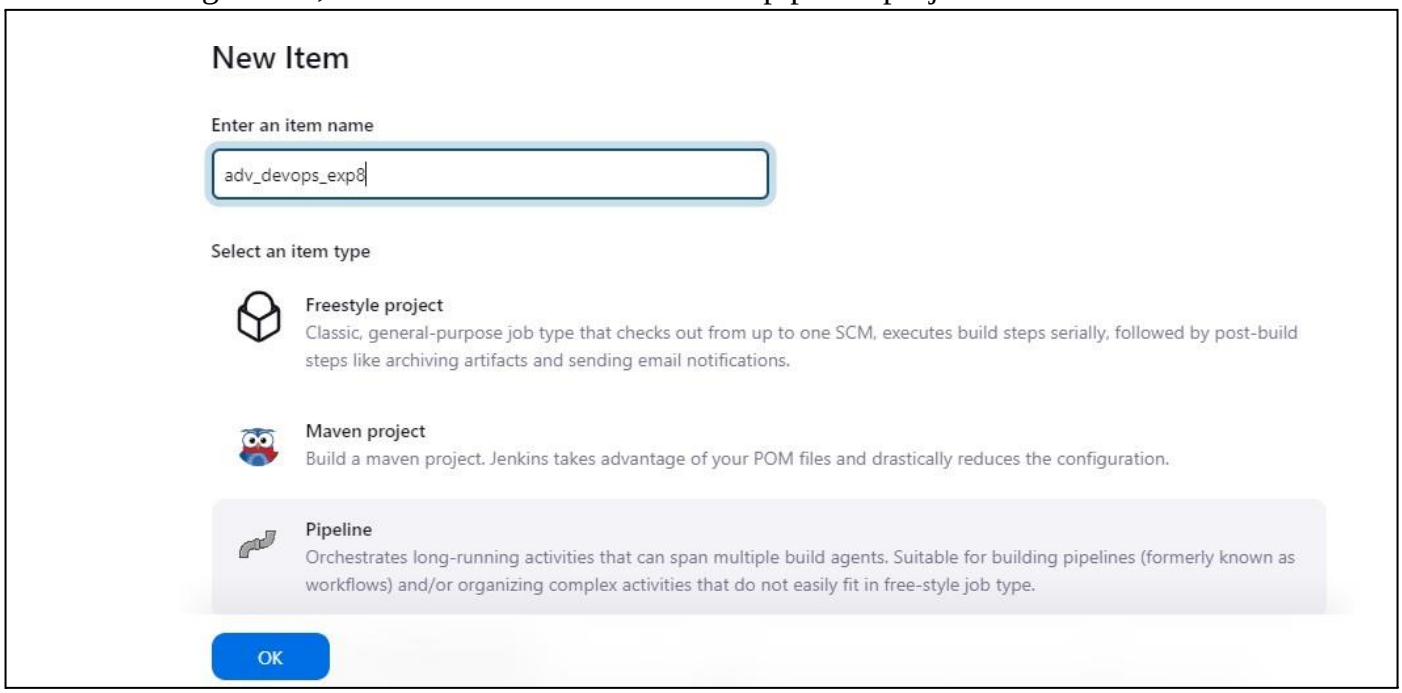


Check the “Install automatically” option. → Under name any name as identifier → Check



the “Install automatically” option.

9. After configuration, create a New Item → choose a pipeline project.



10. Under Pipeline script, enter the following:

```
    node {
stage('Cloning the GitHub Repo') {
  git 'https://github.com/shazforiot/GOL.git'
}

stage('SonarQube analysis') {
  withSonarQubeEnv('<Name_of_SonarQube_environment_on_Jenki
  ns>') {
    sh """
      <PATH_TO_SONARQUBE_SCANNER_FOLDER>/bin/sonar-scanner \
      -D sonar.login=<SonarQube_USERNAME> \
      -D sonar.password=<SonarQube_PASSWORD> \
      -D sonar.projectKey=<Project_KEY> \
      -D sonar.exclusions=vendor/**,resources/**,**/*.java \
      -D sonar.host.url=<SonarQube_URL>(default: http://localhost:9000/)
    """
  }
}
```

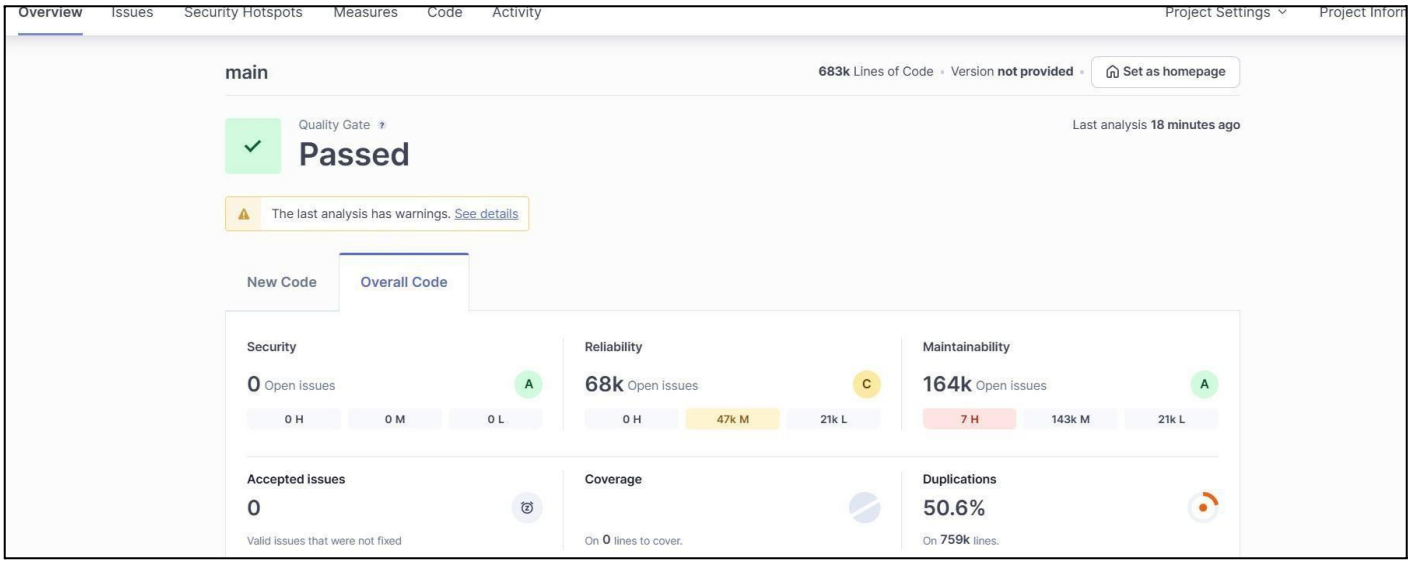
}

It is a java sample project which has a lot of repetitions and issues that will be detected by SonarQube.

11. Build project

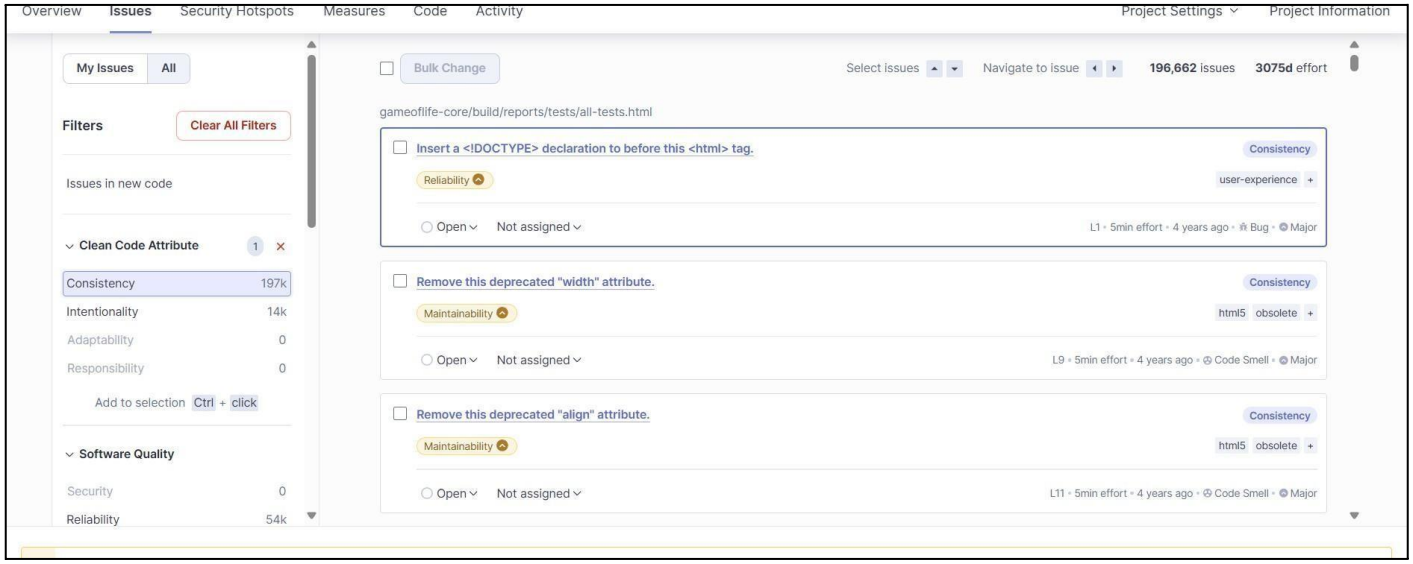
12. Check console

13. Now, check the project in SonarQube

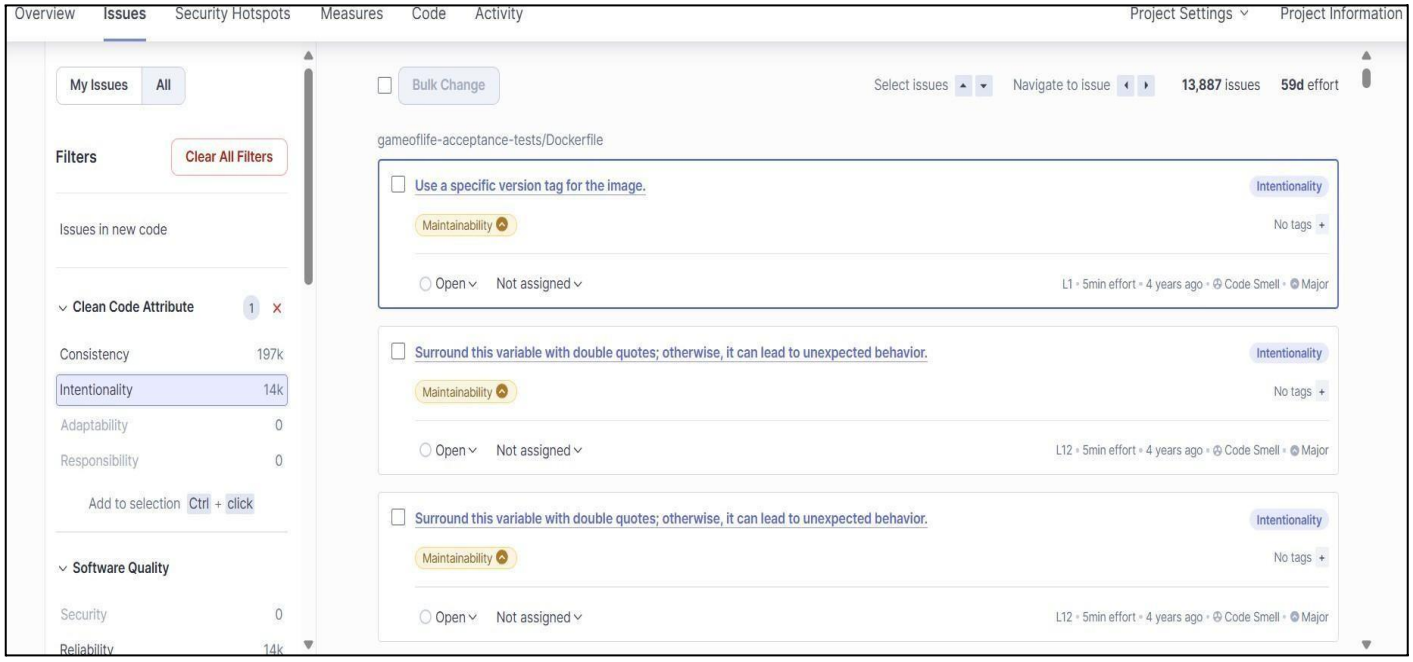


14. Code Problems

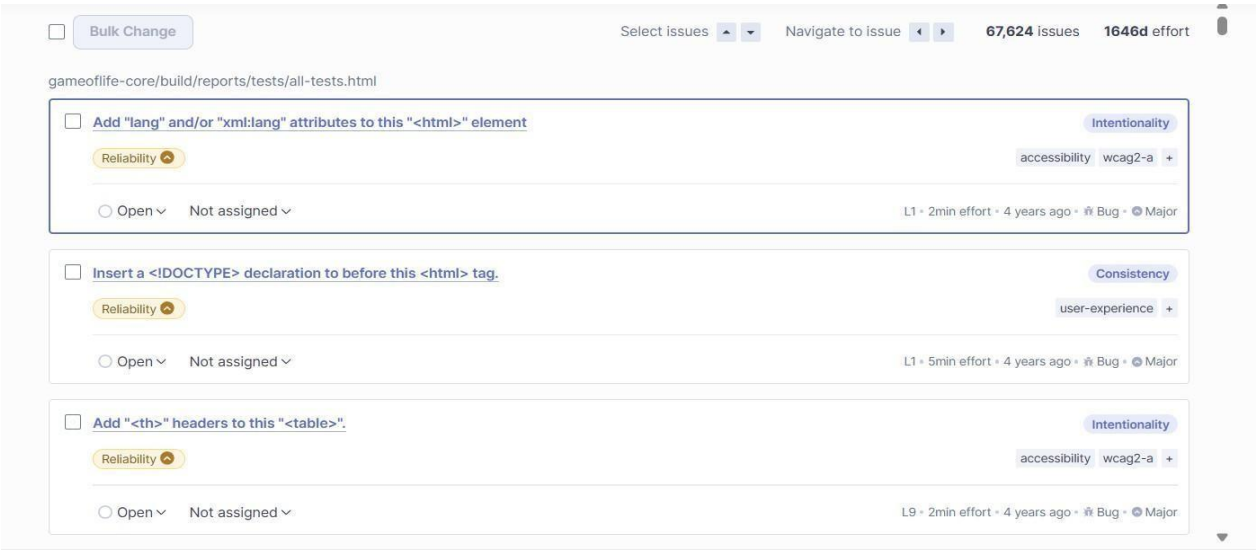
- Consistency



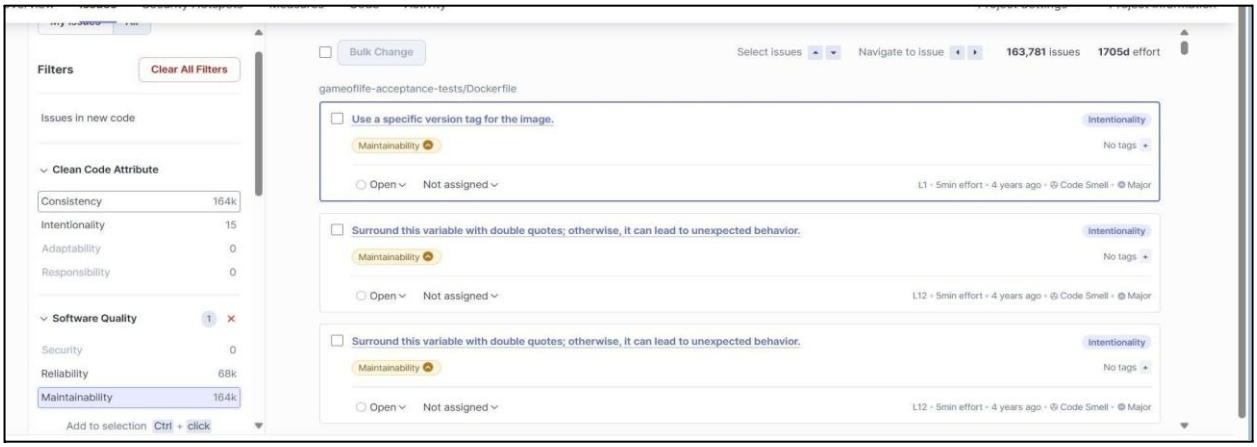
- Intentionality



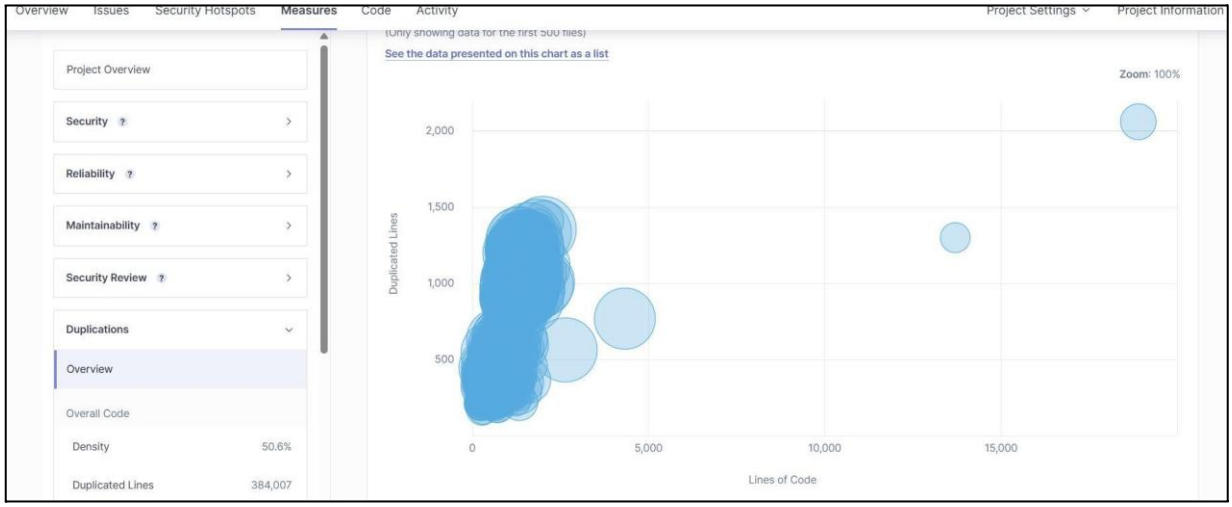
- Bugs



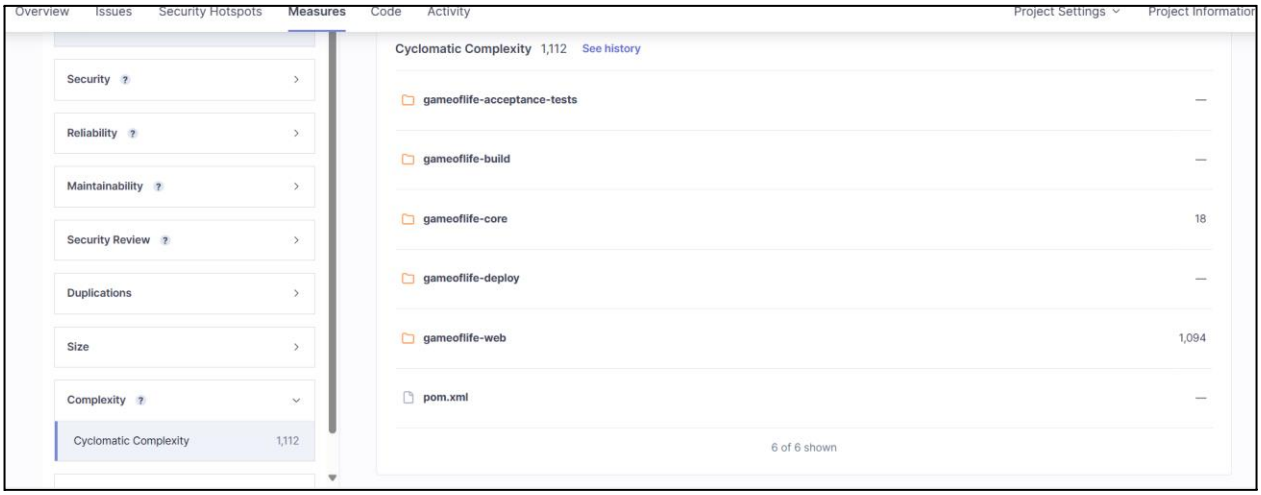
- Code Smells



- Duplications



- Cyclomatic Complexities



In this way, we have integrated Jenkins with SonarQube for SAST.

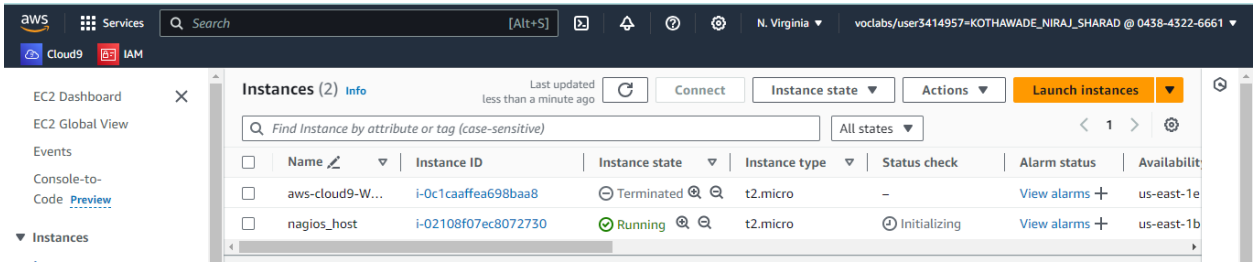
Advanced DevOps Exp-9

Niraj S. Kothawade
D15A – 24

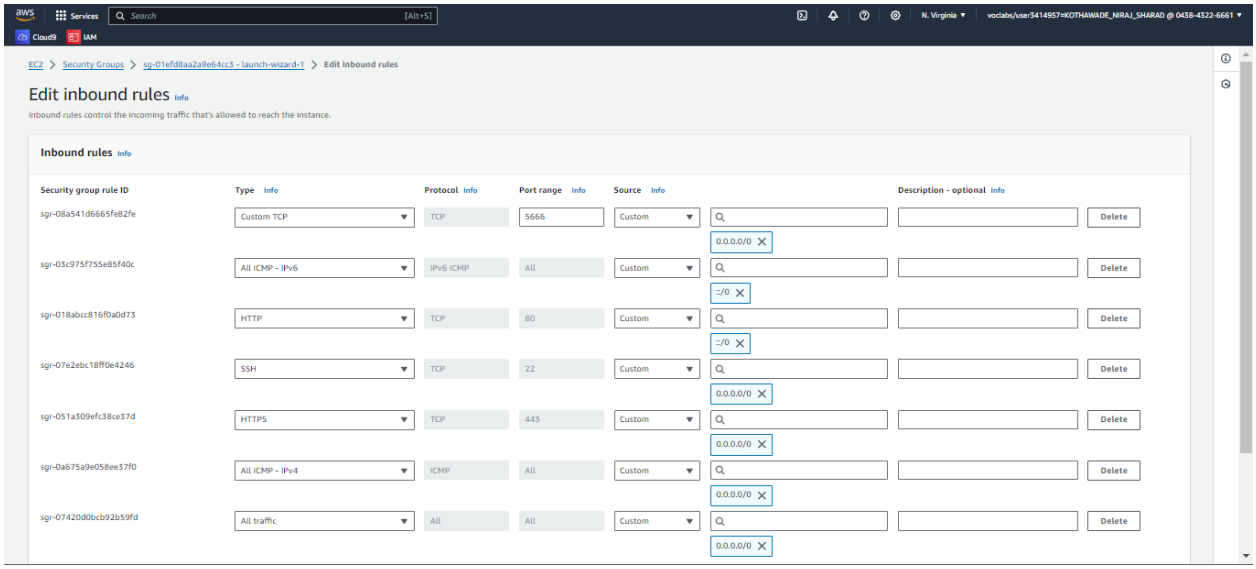
Aim: To Understand Continuous monitoring and Installation and configuration of Nagios Core, Nagios Plugins and NRPE (Nagios Remote Plugin Executor) on Linux Machine.

Procedure:-

Step 1: Create an EC2 Instance and name it as nagios-host



Step 2: Under the security groups, click on edit inbound rules and set as shown in the figure below



Step 3: Now, run the following commands -

sudo su sudo yum update

sudo yum install httpd php

sudo yum install gcc glibc glibc-common sudo

yum install gd gd-devel

```
[ec2-user@ip-172-31-16-211 ~]$ sudo yum install httpd php
Last metadata expiration check: 0:04:23 ago on Sun Sep 29 04:05:53 2024.
Dependencies resolved.
================================================================================
 Package                    Architecture          Version
================================================================================
Installing:
 httpd                      x86_64                2.4.62-1.amzn2023
 php8.3                     x86_64                8.3.10-1.amzn2023.0.1
Installing dependencies:
 apr                        x86_64                1.7.2-2.amzn2023.0.2
 apr-util                   x86_64                1.6.3-1.amzn2023.0.1
```

```
[ec2-user@ip-172-31-16-211 ~]$ sudo yum install gcc glibc glibc-common
Last metadata expiration check: 0:04:54 ago on Sun Sep 29 04:05:53 2024.
Package glibc-2.34-52.amzn2023.0.11.x86_64 is already installed.
Package glibc-common-2.34-52.amzn2023.0.11.x86_64 is already installed.
Dependencies resolved.
================================================================================
 Package                    Architecture          Version
================================================================================
Installing:
 gcc                        x86_64                11.4.1-2.amzn2023.0.2
Installing dependencies:
 annobin-docs               noarch                10.93-1.amzn2023.0.1
 annobin-plugin-gcc         x86_64                10.93-1.amzn2023.0.1
 cpp                        x86_64                11.4.1-2.amzn2023.0.2
```

```
[ec2-user@ip-172-31-16-211 ~]$ sudo yum install gd gd-devel
Last metadata expiration check: 0:05:21 ago on Sun Sep 29 04:05:53 2024.
Dependencies resolved.
================================================================================
 Package                    Architecture          Version
================================================================================
Installing:
 gd                         x86_64                2.3.3-5.amzn2023.0.3
 gd-devel                   x86_64                2.3.3-5.amzn2023.0.3
Installing dependencies:
```

Step 4: Create a new nagios user with its password.

sudo adduser -m nagios

sudo passwd nagios sudo

groupadd nagcmd

sudo usermod -a -G nagcmd nagios

sudo usermod -a -G nagcmd apache

```
[ec2-user@ip-172-31-16-211 ~]$ sudo adduser -m nagios
[ec2-user@ip-172-31-16-211 ~]$ sudo passwd nagios
Changing password for user nagios.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
```

```
[ec2-user@ip-172-31-16-211 ~]$ sudo groupadd nagcmd
[ec2-user@ip-172-31-16-211 ~]$ sudo usermod -a -G nagcmd nagios
[ec2-user@ip-172-31-16-211 ~]$ sudo usermod -a -G nagcmd apache
```

Step 5: Now, run the following commands -

mkdir ~/downloads

cd ~/downloads

Wget

http://prdownloads.sourceforge.net/sourceforge/nagios/nagios-4.0.8.tar.gz wget

http://nagios-plugins.org/download/nagios-plugins-2.0.3.tar.gz tar zxvf nagios-4.0.8.tar.gz

```
[ec2-user@ip-172-31-16-211 ~]$ mkdir ~/downloads
[ec2-user@ip-172-31-16-211 ~]$ cd ~/downloads
[ec2-user@ip-172-31-16-211 downloads]$
```

```
[ec2-user@ip-172-31-16-211 downloads]$ wget http://prdownloads.sourceforge.net/sourceforge/nagios/nagios-4.0.8.tar.gz
--2024-09-29 04:17:09--  http://prdownloads.sourceforge.net/sourceforge/nagios/nagios-4.0.8.tar.gz
Resolving prdownloads.sourceforge.net (prdownloads.sourceforge.net)... 204.68.111.105
Connecting to prdownloads.sourceforge.net (prdownloads.sourceforge.net)|204.68.111.105|:80... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: http://downloads.sourceforge.net/project/nagios/nagios-4.x/nagios-4.0.8/nagios-4.0.8.tar.gz [following]
--2024-09-29 04:17:10--  http://downloads.sourceforge.net/project/nagios/nagios-4.x/nagios-4.0.8/nagios-4.0.8.tar.gz
```

```
[ec2-user@ip-172-31-16-211 downloads]$ wget http://nagios-plugins.org/download/nagios-plugins-2.0.3.tar.gz
--2024-09-29 04:17:25--  http://nagios-plugins.org/download/nagios-plugins-2.0.3.tar.gz
Resolving nagios-plugins.org (nagios-plugins.org)... 45.56.123.251
Connecting to nagios-plugins.org (nagios-plugins.org)|45.56.123.251|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 2659772 (2.5M) [application/x-gzip]
Saving to: 'nagios-plugins-2.0.3.tar.gz'

nagios-plugins-2.0.3.tar.gz          100%[=============================================================================>]   2.54M  1.68MB/s    in 1.5s

2024-09-29 04:17:27 (1.68 MB/s) - 'nagios-plugins-2.0.3.tar.gz' saved [2659772/2659772]
```

```
[ec2-user@ip-172-31-16-211 downloads]$ tar zxvf nagios-4.0.8.tar.gz
nagios-4.0.8/
nagios-4.0.8/.gitignore
nagios-4.0.8/Changelog
nagios-4.0.8/INSTALLING
nagios-4.0.8/LEGAL
nagios-4.0.8/LICENSE
nagios-4.0.8/Makefile.in
nagios-4.0.8/README
nagios-4.0.8/README.asciidoc
nagios-4.0.8/THANKS
nagios-4.0.8/UPGRADING
nagios-4.0.8/base/
nagios-4.0.8/base/.gitignore
nagios-4.0.8/base/Makefile.in
```

```
[ec2-user@ip-172-31-16-211 downloads]$ cd nagios-4.0.8
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$
```

Step 6: Now to run the configuration script run the following command.

./configure --with-command-group=nagcmd

```
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$ ./configure --with-command-group=nagcmd
checking for a BSD-compatible install... /usr/bin/install -c
checking build system type... x86_64-unknown-linux-gnu
checking host system type... x86_64-unknown-linux-gnu
checking for gcc... gcc
checking for C compiler default output file name... a.out
checking whether the C compiler works... yes
checking whether we are cross compiling... no
checking for suffix of executables...
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
```

Step 7: Now, to compile the source code run the following command - make all

sudo make install sudo

make install-init

sudo make install-config

sudo make install-commandmode

```
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$ make all
cd ./base && make
make[1]: Entering directory '/home/ec2-user/downloads/nagios-4.0.8/base'
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o nagios.o nagios.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o broker.o broker.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o nebmods.o nebmods.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o ../common/shared.o ../common/shared.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o nerd.o nerd.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o query-handler.o query-handler.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o workers.o workers.c
In function 'get_wproc_list',
    inlined from 'get_worker' at workers.c:224:12:
workers.c:209:17: warning: '%s' directive argument is null [-Wformat-overflow=]
  209 |                 log_debug_info(DEBUGL_CHECKS, 1, "Found specialized worker(s) for '%s'", (slash && *slash != '/') ? slash : cmd_name);
      |                 ^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o checks.o checks.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o config.o config.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o commands.o commands.c
commands.c: In function 'process_passive_service_check':
commands.c:2247:19: warning: assignment discards 'const' qualifier from pointer target type [-Wdiscarded-qualifiers]
 2247 |         cr.source = command_worker.source_name;
      |                   ^
commands.c: In function 'process_passive_host_check':
```

```
c2-user/downloads/nagios-4.0.8/base/../common/shared.c:24: f
collect2: error: ld returned 1 exit status
make[1]: *** [Makefile:177: archivejson.cgi] Error 1
make[1]: Leaving directory '/home/ec2-user/downloads/nagios-
make: *** [Makefile:72: all] Error 2
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$
```

```
collect2: error: ld returned 1 exit status
make[1]: *** [Makefile:177: archivejson.cgi] Error 1
make[1]: Leaving directory '/home/ec2-user/downloads/nagios-4.0.8/cgi'
make: *** [Makefile:72: all] Error 2
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$
```

```
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$ sudo make install
cd ./base && make install
make[1]: Entering directory '/home/ec2-user/downloads/nagios-4.0.8/base'
make install-basic
make[2]: Entering directory '/home/ec2-user/downloads/nagios-4.0.8/base'
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/bin
/usr/bin/install -c -m 774 -o nagios -g nagios nagios /usr/local/nagios/bin
/usr/bin/install -c -m 774 -o nagios -g nagios nagiostats /usr/local/nagios/bin
make[2]: Leaving directory '/home/ec2-user/downloads/nagios-4.0.8/base'
make strip-post-install
make[2]: Entering directory '/home/ec2-user/downloads/nagios-4.0.8/base'
/usr/bin/strip /usr/local/nagios/bin/nagios
/usr/bin/strip /usr/local/nagios/bin/nagiostats
make[2]: Leaving directory '/home/ec2-user/downloads/nagios-4.0.8/base'
make[1]: Leaving directory '/home/ec2-user/downloads/nagios-4.0.8/base'
cd ./cgi && make install
make[1]: Entering directory '/home/ec2-user/downloads/nagios-4.0.8/cgi'
make install-basic
make[2]: Entering directory '/home/ec2-user/downloads/nagios-4.0.8/cgi'
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/sbin
for file in *.cgi; do \
        /usr/bin/install -c -m 775 -o nagios -g nagios $file /usr/local/nagios/sbin; \
done
/usr/bin/install: cannot stat '*.cgi': No such file or directory
make[2]: *** [Makefile:205: install-basic] Error 1
```

```
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$ sudo make install-init
/usr/bin/install -c -m 755 -d -o root -g root /etc/rc.d/init.d
/usr/bin/install -c -m 755 -o root -g root daemon-init /etc/rc.d/init.d/nagios

*** Init script installed ***

[ec2-user@ip-172-31-16-211 nagios-4.0.8]$
```

```
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$ sudo make install-config
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/etc
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/etc/objects
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/nagios.cfg /usr/local/nagios/etc/nagios.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/cgi.cfg /usr/local/nagios/etc/cgi.cfg
/usr/bin/install -c -b -m 660 -o nagios -g nagios sample-config/resource.cfg /usr/local/nagios/etc/resource.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/templates.cfg /usr/local/nagios/etc/objects/templates.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/commands.cfg /usr/local/nagios/etc/objects/commands.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/contacts.cfg /usr/local/nagios/etc/objects/contacts.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/timeperiods.cfg /usr/local/nagios/etc/objects/timeperiods.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/localhost.cfg /usr/local/nagios/etc/objects/localhost.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/windows.cfg /usr/local/nagios/etc/objects/windows.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/printer.cfg /usr/local/nagios/etc/objects/printer.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/switch.cfg /usr/local/nagios/etc/objects/switch.cfg

*** Config files installed ***

Remember, these are *SAMPLE* config files.  You'll need to read
the documentation for more information on how to actually define
services, hosts, etc. to fit your particular needs.

[ec2-user@ip-172-31-16-211 nagios-4.0.8]$
```

```
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$ sudo make install-commandmode
/usr/bin/install -c -m 775 -o nagios -g nagcmd -d /usr/local/nagios/var/rw
chmod g+s /usr/local/nagios/var/rw

*** External command directory configured ***

[ec2-user@ip-172-31-16-211 nagios-4.0.8]$
```

Step 8: Edit the config file and change the email address. sudo nano /usr/local/nagios/etc/objects/contacts.cfg

```
define contact{
        contact_name                    nagiosadmin             ; Short name of user
        use                             generic-contact         ; Inherit default values from generic-contact template (defined above)
        alias                           Nagios Admin            ; Full name of user

        email                           2022.niraj.kothawade@ves.ac.in  ; <<***** CHANGE THIS TO YOUR EMAIL ADDRESS ******
        }
```

Step 9: Now run the following commands –

sudo make install-webconf

sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin sudo service httpd restart

cd ~/downloads

tar zxvf nagios-plugins-2.0.3.tar.gz

```
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$ sudo make install-webconf
/usr/bin/install -c -m 644 sample-config/httpd.conf /etc/httpd/conf.d/nagios.conf

*** Nagios/Apache conf file installed ***
```

```
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$ sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin
New password:
Re-type new password:
Adding password for user nagiosadmin
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$
```

```
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$ sudo service httpd restart
Redirecting to /bin/systemctl restart httpd.service
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$
```

```
[ec2-user@ip-172-31-16-211 nagios-4.0.8]$ cd ~/downloads
[ec2-user@ip-172-31-16-211 downloads]$ tar zxvf nagios-plugins-2.0.3.tar.gz
nagios-plugins-2.0.3/
nagios-plugins-2.0.3/perlmods/
nagios-plugins-2.0.3/perlmods/Config-Tiny-2.14.tar.gz
nagios-plugins-2.0.3/perlmods/parent-0.226.tar.gz
nagios-plugins-2.0.3/perlmods/Test-Simple-0.98.tar.gz
nagios-plugins-2.0.3/perlmods/Makefile.in
nagios-plugins-2.0.3/perlmods/version-0.9903.tar.gz
nagios-plugins-2.0.3/perlmods/Makefile.am
nagios-plugins-2.0.3/perlmods/Module-Runtime-0.013.tar.gz
nagios-plugins-2.0.3/perlmods/Module-Metadata-1.000014.tar.gz
nagios-plugins-2.0.3/perlmods/Params-Validate-1.08.tar.gz
nagios-plugins-2.0.3/perlmods/Class-Accessor-0.34.tar.gz
nagios-plugins-2.0.3/perlmods/Try-Tiny-0.18.tar.gz
```

Step 10: Compile and install plugins

cd nagios-plugins-2.0.3

./configure --with-nagios-user=nagios --with-nagios-group=nagios make

sudo make install

```
[ec2-user@ip-172-31-16-211 nagios-plugins-2.0.3]$ ./configure --with-nagios-user=nagios --with-nagios-group=nagios
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a thread-safe mkdir -p... /usr/bin/mkdir -p
checking for gawk... gawk
checking whether make sets $(MAKE)... yes
checking whether to disable maintainer-specific portions of Makefiles... yes
checking build system type... x86_64-unknown-linux-gnu
checking host system type... x86_64-unknown-linux-gnu
checking for gcc... gcc
checking for C compiler default output file name... a.out
checking whether the C compiler works... yes
```

```
[ec2-user@ip-172-31-16-211 nagios-plugins-2.0.3]$ sudo make install
```

```
make  install-exec-hook
make[3]: Entering directory '/home/ec2-user/downloads/nagios-plugins-2.0.3/plugins'
cd /usr/local/nagios/libexec && \
for i in check_ftp check_imap check_nntp check_pop check_udp check_clamd  ; do rm -f $i; ln -
if [ -x check_ldap ] ; then rm -f check_ldaps ; ln -s check_ldap check_ldaps ; fi
make[3]: Leaving directory '/home/ec2-user/downloads/nagios-plugins-2.0.3/plugins'
make[2]: Nothing to be done for 'install-data-am'.
make[2]: Leaving directory '/home/ec2-user/downloads/nagios-plugins-2.0.3/plugins'
make[1]: Leaving directory '/home/ec2-user/downloads/nagios-plugins-2.0.3/plugins'
Making install in plugins-scripts
make[1]: Entering directory '/home/ec2-user/downloads/nagios-plugins-2.0.3/plugins-scripts'
make[2]: Entering directory '/home/ec2-user/downloads/nagios-plugins-2.0.3/plugins-scripts'
test -z "/usr/local/nagios/libexec" || /usr/bin/mkdir -p "/usr/local/nagios/libexec"
 /usr/bin/install -c -o nagios -g nagios check_breeze check_disk_smb check_flexlm check_ircd
tus check_ifoperstatus check_mailq check_file_age utils.sh utils.pm '/usr/local/nagios/libexe
make[2]: Nothing to be done for 'install-data-am'.
make[2]: Leaving directory '/home/ec2-user/downloads/nagios-plugins-2.0.3/plugins-scripts'
```

Step 11: To start nagios run the following commands –

sudo chkconfig --add nagios

sudo chkconfig nagios

on Verify using the following command

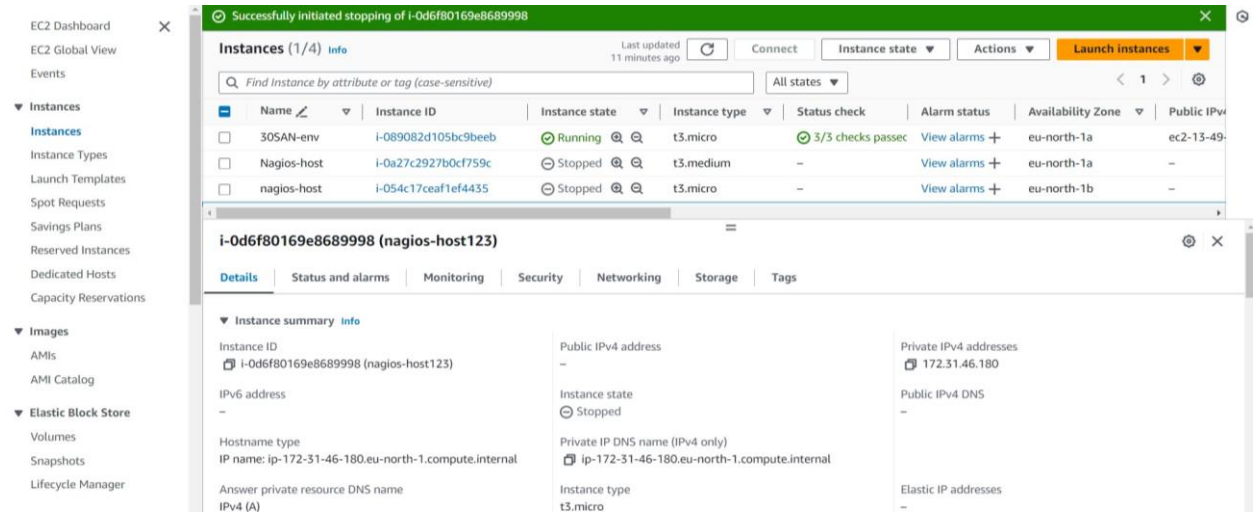
- sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

```
[ec2-user@ip-172-31-16-211 nagios-plugins-2.0.3]$ sudo chkconfig --add nagios
[ec2-user@ip-172-31-16-211 nagios-plugins-2.0.3]$ sudo chkconfig nagios on
[ec2-user@ip-172-31-16-211 nagios-plugins-2.0.3]$
```

```
[ec2-user@ip-172-31-16-211 nagios-plugins-2.0.3]$ sudo chkconfig --add nagios
[ec2-user@ip-172-31-16-211 nagios-plugins-2.0.3]$ sudo chkconfig nagios on
[ec2-user@ip-172-31-16-211 nagios-plugins-2.0.3]$ sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

Nagios Core 4.0.8
Copyright (c) 2009-present Nagios Core Development Team and Community Contributors
Copyright (c) 1999-2009 Ethan Galstad
Last Modified: 08-12-2014
License: GPL

Website: http://www.nagios.org
Reading configuration data...
Error in configuration file '/usr/local/nagios/etc/nagios.cfg' - Line 452 (Check result path '/usr/local/nagios/var/spool/checkresults' is not a valid directory
   Error processing main config file!

[ec2-user@ip-172-31-16-211 nagios-plugins-2.0.3]$
```

```
[ec2-user@ip-172-31-16-211 nagios-plugins-2.0.3]$ sudo service nagios start
Starting nagios (via systemctl):                           [  OK  ]
```

Step 12: Go to EC2 instance and copy the public IP address of the instance



Step 13: Now visit http://<your IP address>/nagios Enter correct credentials and then you will see this page

Advance DevOps Exp 10

Niraj S. Kothawade
D15A - 24

Aim: To perform Port, Service monitoring, Windows/Linux server monitoring using Nagios.

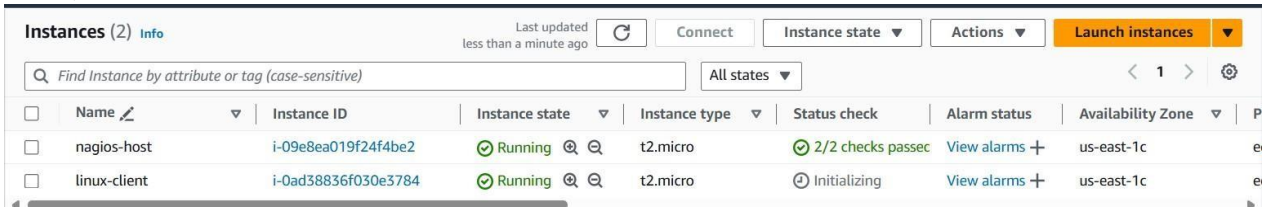
Procedure:-

Check if the nagios service is running by executing following command

```
ubuntu@ip-172-31-89-161:~$ sudo systemctl status nagios
● nagios.service - Nagios Core 4.4.6
     Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; preset: enabled)
     Active: active (running) since Sat 2024-09-28 16:08:58 UTC; 1min 2s ago
       Docs: https://www.nagios.org/documentation
    Process: 15743 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
    Process: 15753 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
   Main PID: 15764 (nagios)
      Tasks: 6 (limit: 1130)
     Memory: 2.4M (peak: 3.2M)
        CPU: 29ms
     CGroup: /system.slice/nagios.service
             ├─15764 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
             ├─15765 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─15766 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─15767 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─15768 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             └─15769 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Sep 28 16:08:58 ip-172-31-89-161 nagios[15764]: qh: Socket '/usr/local/nagios/var/rw/nagios.qh' successfully initialized
Sep 28 16:08:58 ip-172-31-89-161 nagios[15764]: qh: core query handler registered
Sep 28 16:08:58 ip-172-31-89-161 nagios[15764]: qh: echo service query handler registered
Sep 28 16:08:58 ip-172-31-89-161 nagios[15764]: qh: help for the query handler registered
Sep 28 16:08:58 ip-172-31-89-161 nagios[15764]: wproc: Successfully registered manager as @wproc with query handler
Sep 28 16:08:58 ip-172-31-89-161 nagios[15764]: wproc: Registry request: name=Core Worker 15765;pid=15765
Sep 28 16:08:58 ip-172-31-89-161 nagios[15764]: wproc: Registry request: name=Core Worker 15766;pid=15766
Sep 28 16:08:58 ip-172-31-89-161 nagios[15764]: wproc: Registry request: name=Core Worker 15767;pid=15767
```

sudo systemctl status nagios

Now, create a new EC2 instance on AWS



Now perform the following commands on nagios-host EC2 instance.
On the server, run this command

```
ubuntu@ip-172-31-89-161:~$ ps -ef | grep nagios
nagios     15764       1  0 16:08 ?        00:00:00 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
nagios     15765   15764  0 16:08 ?        00:00:00 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
nagios     15766   15764  0 16:08 ?        00:00:00 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
nagios     15767   15764  0 16:08 ?        00:00:00 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
nagios     15768   15764  0 16:08 ?        00:00:00 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
nagios     15769   15764  0 16:08 ?        00:00:00 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
ubuntu     15957    1342  0 16:13 pts/0    00:00:00 grep --color=auto nagios
ubuntu@ip-172-31-89-161:~$
```

ps -ef | grep nagios

Become a root user and create 2 folders
sudo su

mkdir /usr/local/nagios/etc/objects/monitorhosts
mkdir /usr/local/nagios/etc/objects/monitorhosts/linuxhosts

```
ubuntu@ip-172-31-89-161:~$ sudo su
mkdir /usr/local/nagios/etc/objects/monitorhosts
mkdir /usr/local/nagios/etc/objects/monitorhosts/linuxhosts
root@ip-172-31-89-161:/home/ubuntu#
```

Copy localhost.cfg file to the mentioned location
cp /usr/local/nagios/etc/objects/localhost.cfg

```
root@ip-172-31-89-161:/usr/local/nagios/etc/objects# cp /usr/local/nagios/etc/objects/localhost.cfg /usr/local/nagios/etc/objects/monitorhosts/linuxhosts
cp: cannot create regular file '/usr/local/nagios/etc/objects/monitorhosts/linuxhosts': No such file or directory
root@ip-172-31-89-161:/usr/local/nagios/etc/objects# sudo mkdir -p /usr/local/nagios/etc/objects/monitorhosts/linuxhosts
root@ip-172-31-89-161:/usr/local/nagios/etc/objects# cp /usr/local/nagios/etc/objects/localhost.cfg /usr/local/nagios/etc/objects/monitorhosts/linuxhosts
root@ip-172-31-89-161:/usr/local/nagios/etc/objects#
```

/usr/local/nagios/etc/objects/monitorhosts/linuxhosts

Open the nano editor for localhost.cfg file and make these changes. Add the Ip address of the linux-client for the address field.
nano

```
  GNU nano 7.2                                        /usr/local/nagios/et
##############################################################################
#
# HOST DEFINITION
#
##############################################################################

# Define a host for the local machine

define host {

    use                     linux-server            ; Name of host te
                                                    ; This host defin
                                                    ; in (or inherite

    host_name               linuxserver
    alias                   linuxserver
    address                 52.207.253.18
}



##############################################################################
#
# HOST GROUP DEFINITION

^G Help          ^O Write Out     ^W Where Is      ^K Cut           ^T Ex
^X Exit          ^R Read File     ^\ Replace       ^U Paste         ^J Ju
```

/usr/local/nagios/etc/objects/monitorhosts/linuxhosts/localhost.cfg

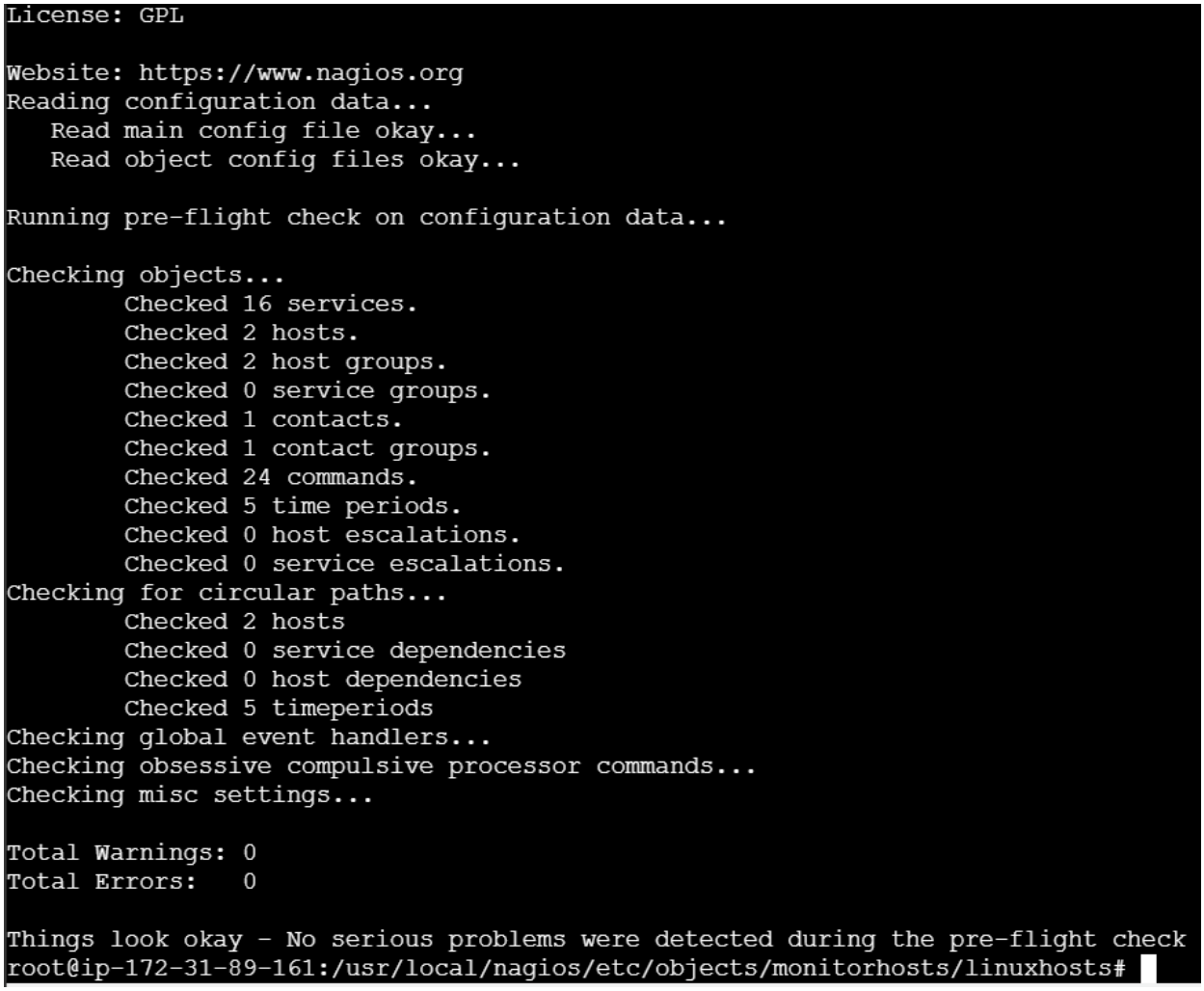
Note - Here replace hostname with linuxserver

nano /usr/local/nagios/etc/nagios.cfg
Add the following line to the nagios.cfg file

```
# Definitions for monitoring a router/switch
#cfg_file=/usr/local/nagios/etc/objects/switch.cfg

# Definitions for monitoring a network printer
#cfg_file=/usr/local/nagios/etc/objects/printer.cfg


# You can also tell Nagios to process all config files (with a .cfg
# extension) in a particular directory by using the cfg_dir
# directive as shown below:

#cfg_dir=/usr/local/nagios/etc/servers
#cfg_dir=/usr/local/nagios/etc/printers
#cfg_dir=/usr/local/nagios/etc/switches
#cfg_dir=/usr/local/nagios/etc/routers

cfg_dir=/usr/local/nagios/etc/objects/monitorhosts/
```

cfg_dir=/usr/local/nagios/etc/objects/monitorhosts/

After making the changes in nagios.cfg file now check validate the file by typing the following command in the terminal.
/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg



Now restart the service by using this command

```
root@ip-172-31-89-161:/usr/local/nagios/etc/objects/monitorhosts/linuxhosts# service nagios restart
root@ip-172-31-89-161:/usr/local/nagios/etc/objects/monitorhosts/linuxhosts# systemctl status nagios
● nagios.service - Nagios Core 4.4.6
     Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; preset: enabled)
     Active: active (running) since Sat 2024-09-28 17:36:35 UTC; 19s ago
       Docs: https://www.nagios.org/documentation
    Process: 1870 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
    Process: 1872 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
   Main PID: 1874 (nagios)
      Tasks: 8 (limit: 1130)
     Memory: 3.0M (peak: 3.2M)
        CPU: 24ms
     CGroup: /system.slice/nagios.service
             ├─1874 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
             ├─1875 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─1876 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─1877 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─1878 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─1879 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
             ├─1880 /usr/local/nagios/libexec/check_ping -H 52.207.253.18 -w 3000.0,80% -c 5000.0,100% -p 5
             └─1881 /usr/bin/ping -n -U -w 30 -c 5 52.207.253.18

Sep 28 17:36:35 ip-172-31-89-161 nagios[1874]: qh: Socket '/usr/local/nagios/var/rw/nagios.qh' successfully initialized
Sep 28 17:36:35 ip-172-31-89-161 nagios[1874]: qh: core query handler registered
Sep 28 17:36:35 ip-172-31-89-161 nagios[1874]: qh: echo service query handler registered
Sep 28 17:36:35 ip-172-31-89-161 nagios[1874]: qh: help for the query handler registered
Sep 28 17:36:35 ip-172-31-89-161 nagios[1874]: wproc: Successfully registered manager as @wproc with query handler
Sep 28 17:36:35 ip-172-31-89-161 nagios[1874]: wproc: Registry request: name=Core Worker 1875;pid=1875
lines 1-26
```

service nagios restart

Now using this command update the apt repository of ubuntu (linux-client), install gcc, nagios-nrpe-server and nagios-plugin
sudo apt update -y
sudo apt install gcc -y
sudo apt install -y nagios-nrpe-server nagios-plugins

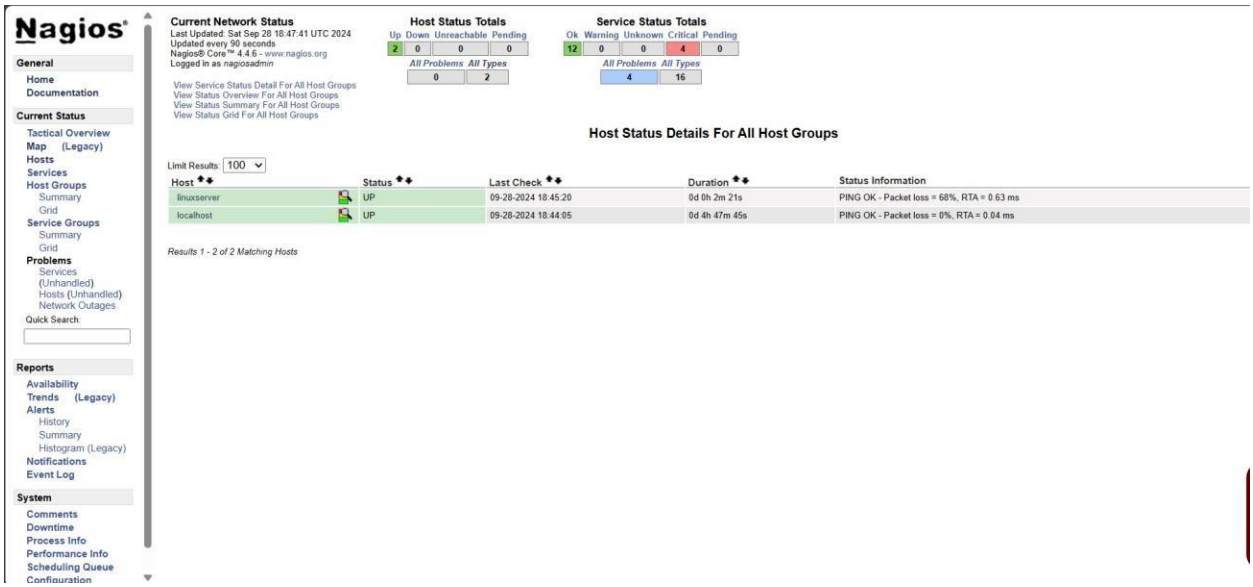
Now open nrpe.cfg file and add the ip address of the nagios host as shown. To open the nrpe.cfg file copy this command.

```
# supported.
#
# Note: The daemon only does rudimentary checkin
# address.  I would highly recommend adding entr
# file to allow only the specified host to conne
# you are running this daemon on.
#
# NOTE: This option is ignored if NRPE is runnin

allowed_hosts=127.0.0.1,54.167.169.0


# COMMAND ARGUMENT PROCESSING
# This option determines whether or not the NRPE
# to specify arguments to commands that are exec
# if the daemon was configured with the --enable
# option.
```

sudo nano /etc/nagios/nrpe.cfg

Now restart nrpe server by using this command
sudo systemctl restart nagios-nrpe-server

Now, check nagios dashboard, you should see linuxserver up and running, if not



check security groups of the EC2 instances

Adv. DevOps Exp. 11

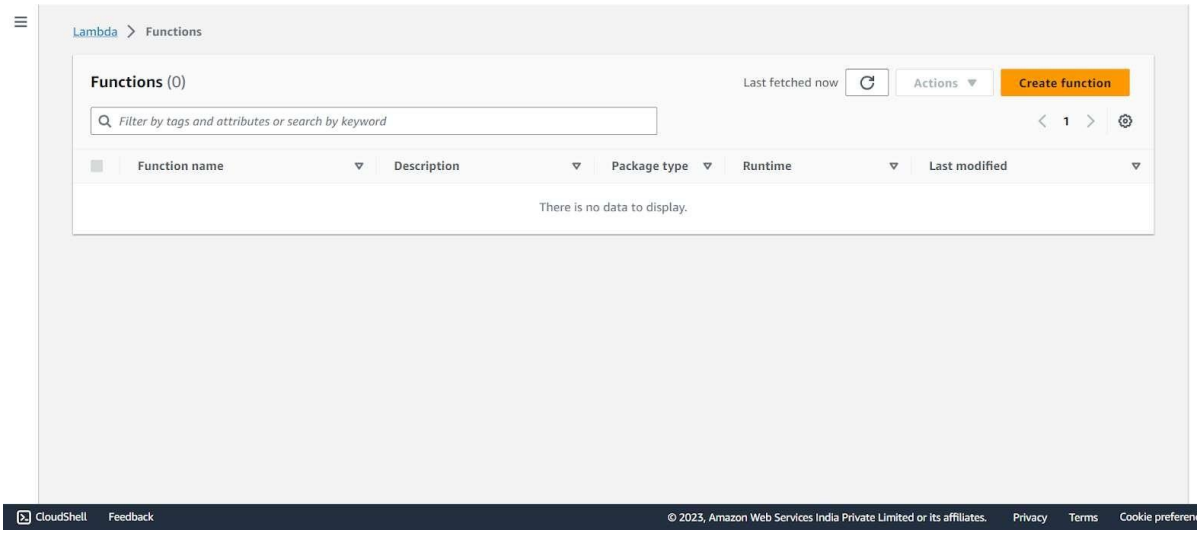
Niraj S. Kothawade

D15A - 24

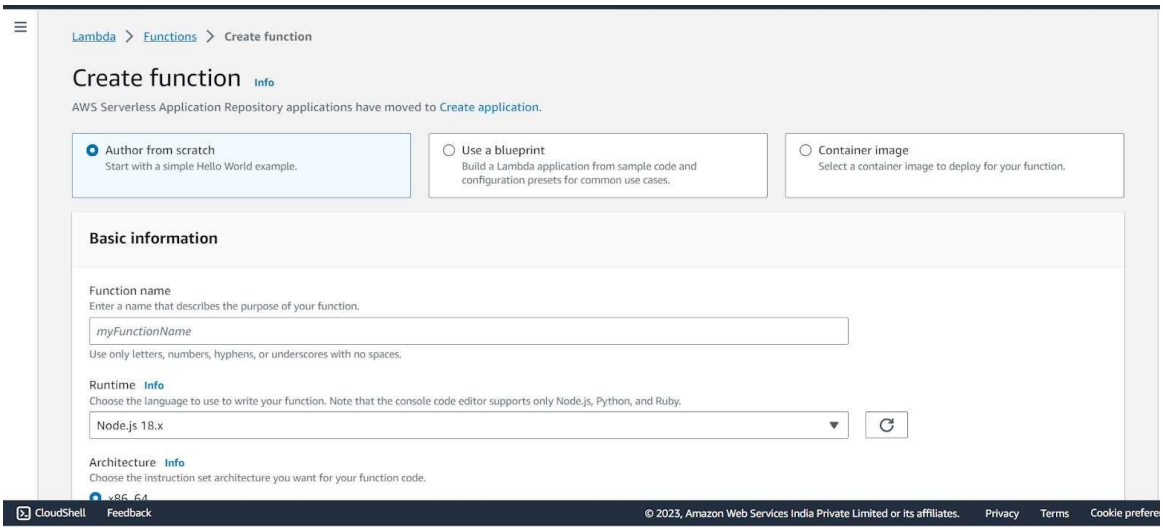
AIM: To understand AWS Lambda, its workflow, various functions and create your first Lambda functions using Python / Java / Nodejs.

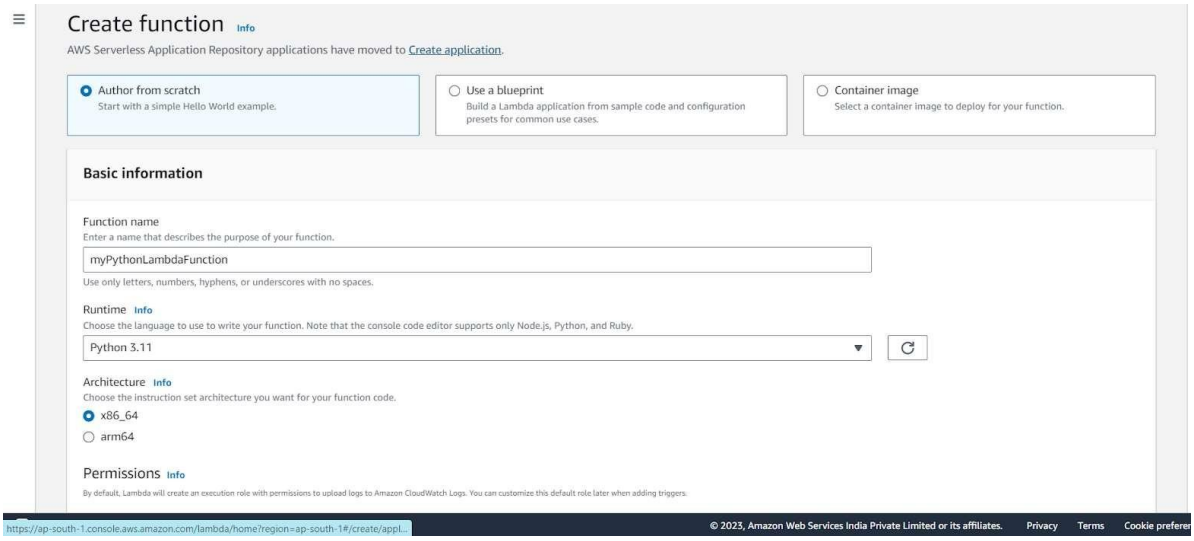
Steps to create an AWS Lambda function

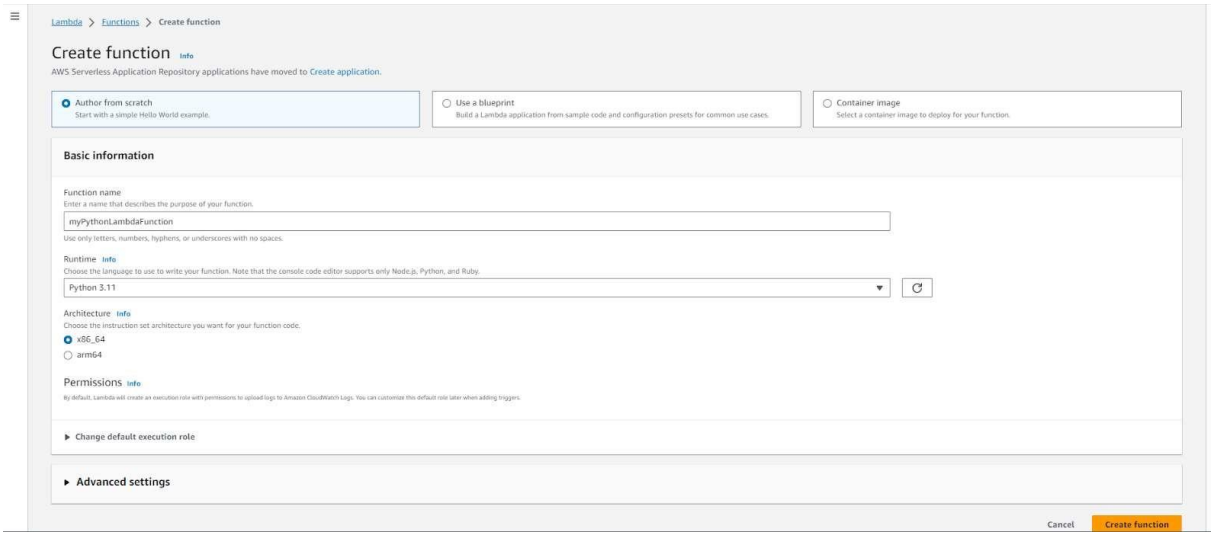
Step 1:Open up the Lambda Console and click on the Create button.
Be mindful of where you create your functions since Lambda is region-dependent.



2. Choose to create a function from scratch or use a blueprint, i.e templates defined by AWS for you with all configuration presets required for the most common use cases.
Then, choose a runtime env for your function, under the dropdown, you can see all the options AWS supports, Python, Nodejs, .NET and Java being the most popular ones.
After that, choose to create a new role with basic Lambda permissions if you don’t havean existing one.

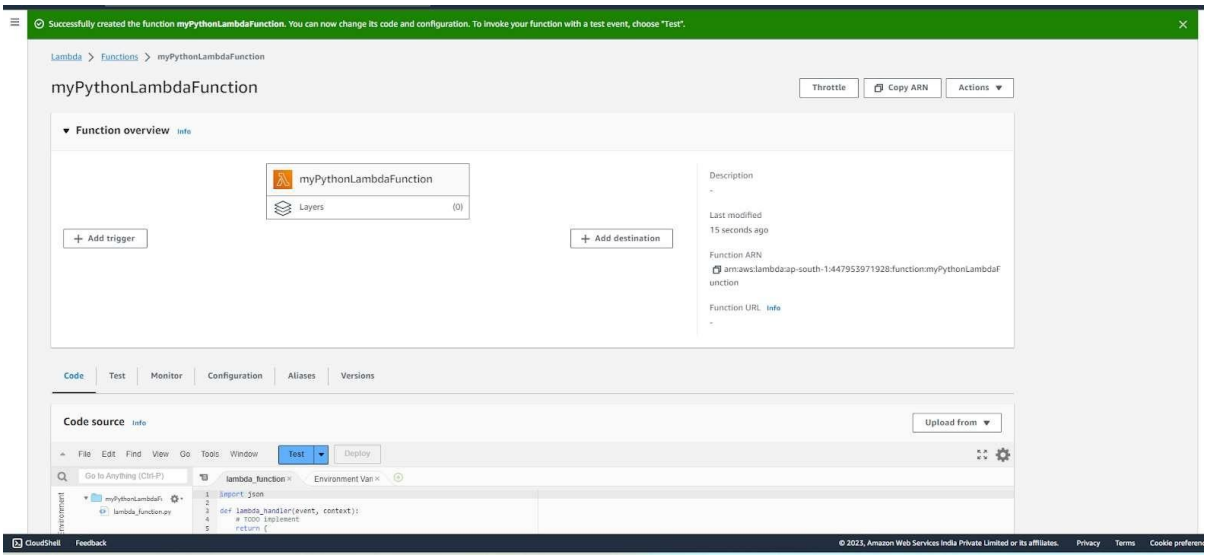


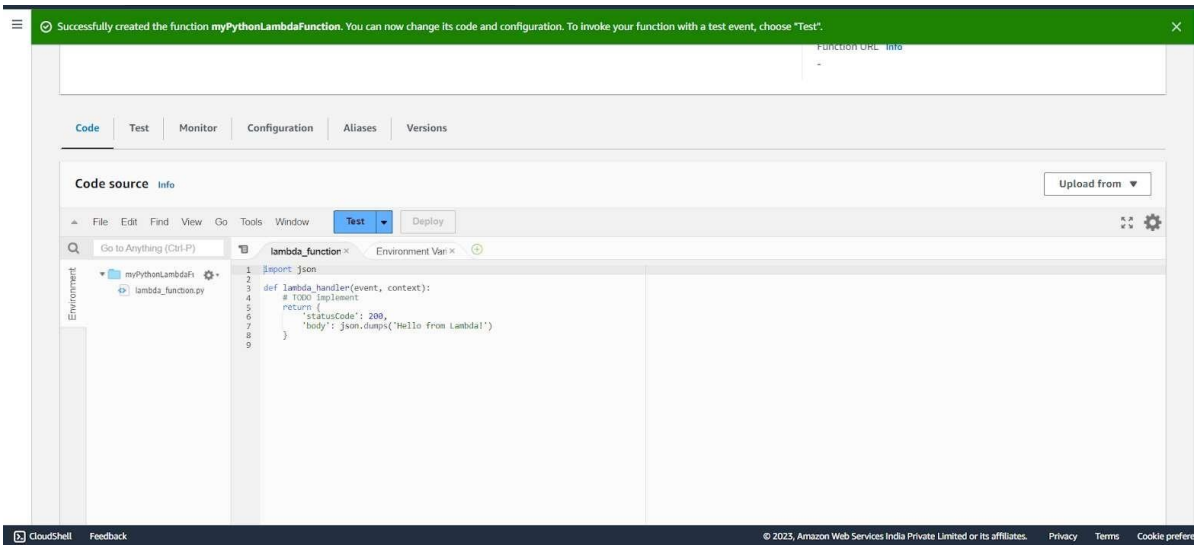




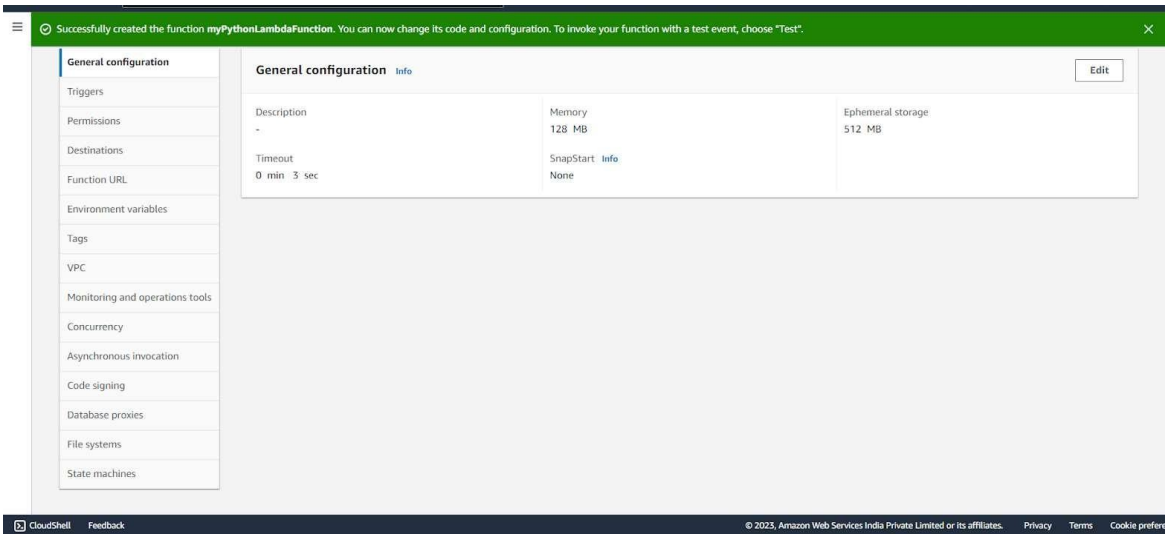
Click on the Create button.

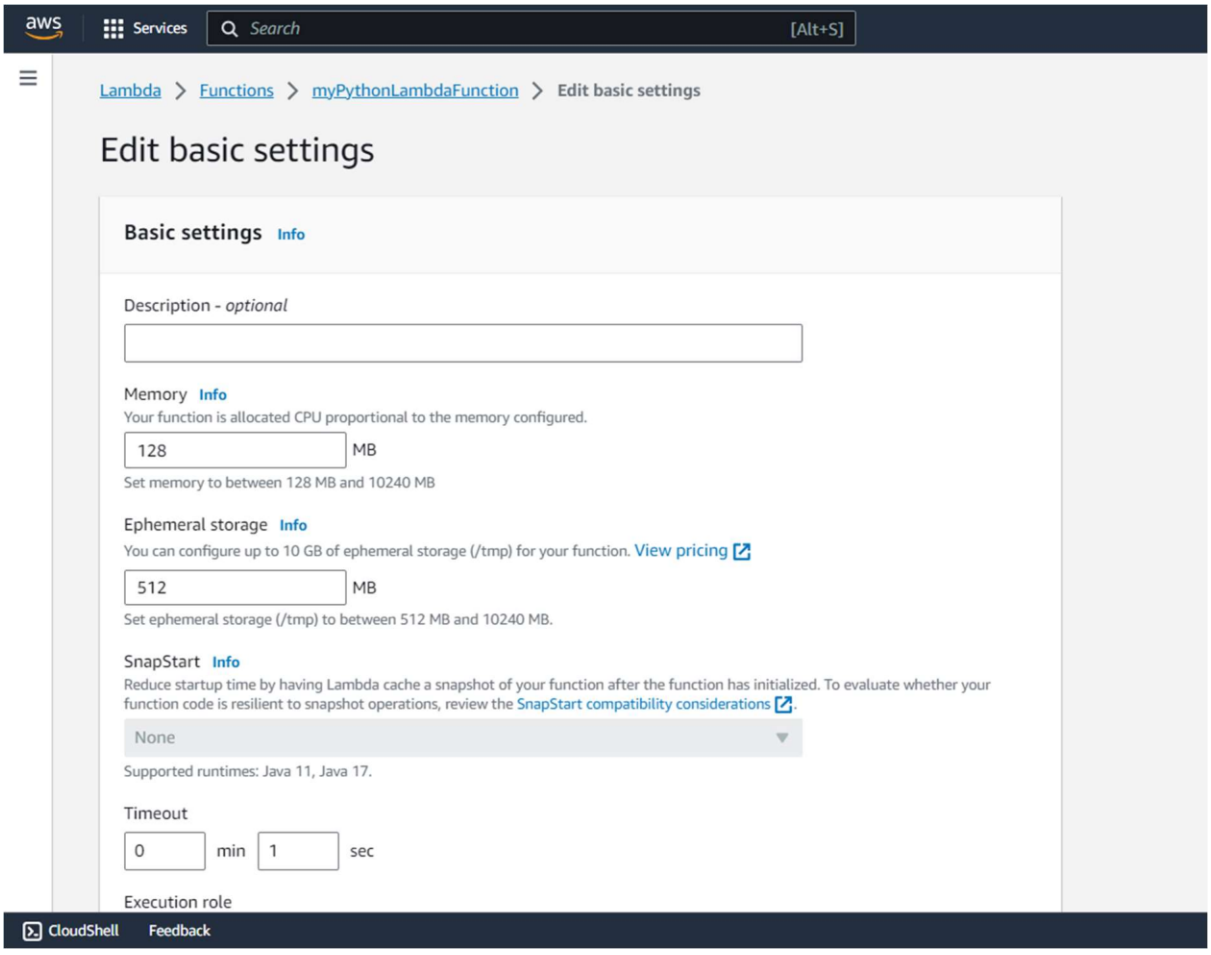
3. This process will take a while to finish and after that, you'll get a message that your function was successfully created.



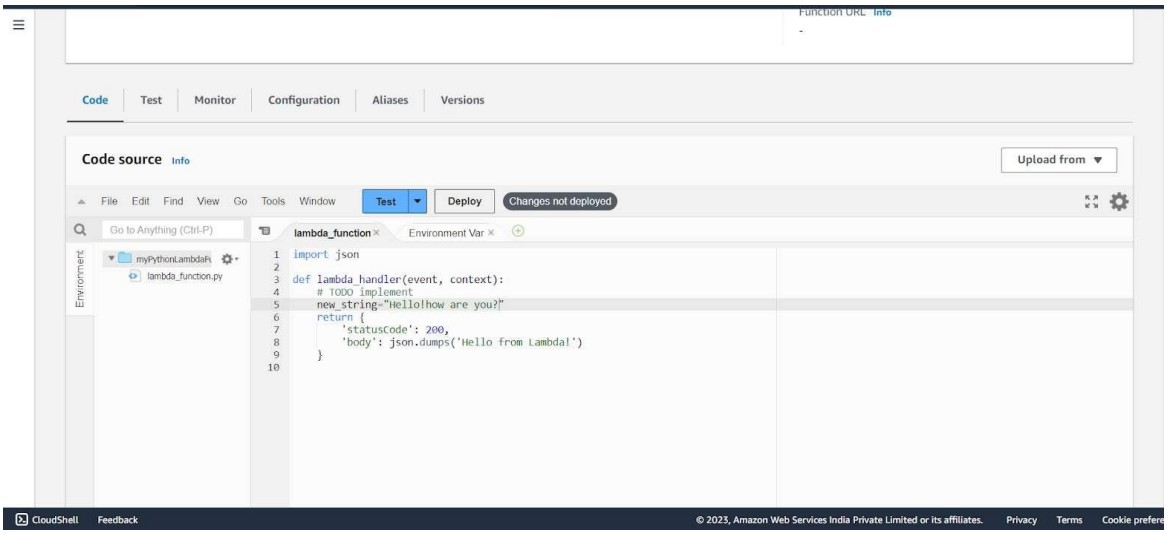


4. To change the configuration, open up the Configuration tab and under General Configuration, choose Edit.
Here, you can enter a description and change Memory and Timeout. I've changed the Timeout period to 1 sec since that is sufficient for now.

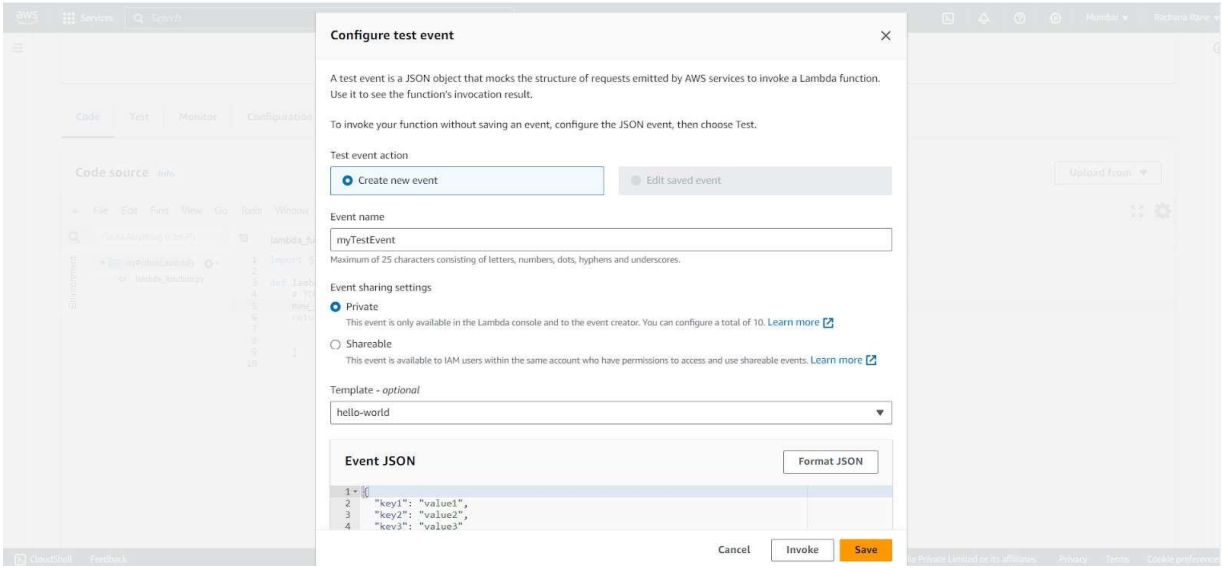




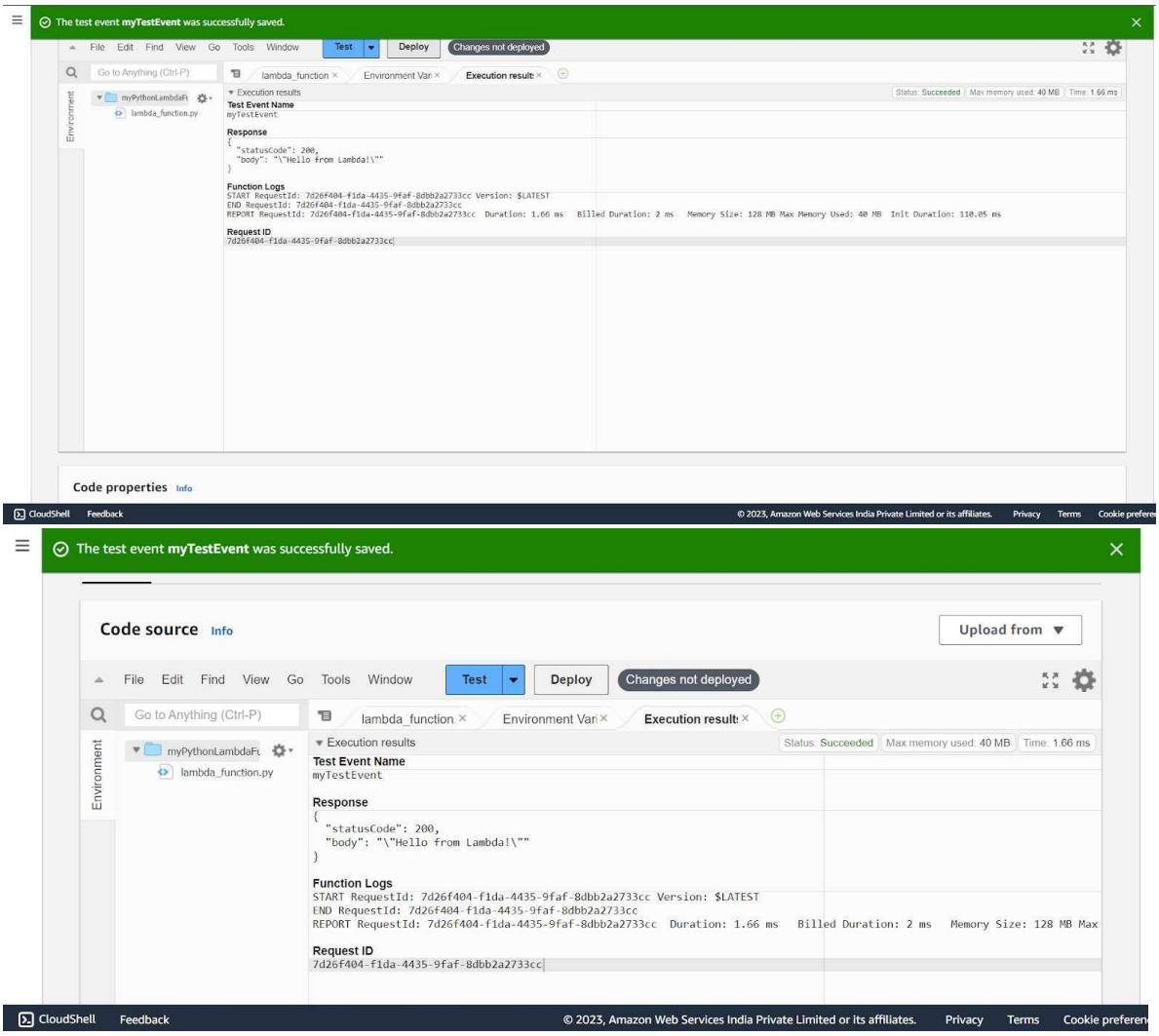
5. You can make changes to your function inside the code editor. You can also upload a zip file of your function or upload one from an S3 bucket if needed.
Press Ctrl + S to save the file and click Deploy to deploy the changes.



6. Click on Test and you can change the configuration, like so. If you do not have anything in the request body, it is important to specify two curly braces as valid JSON, so make sure they are there.



7. Now click on Test and you should be able to see the results.

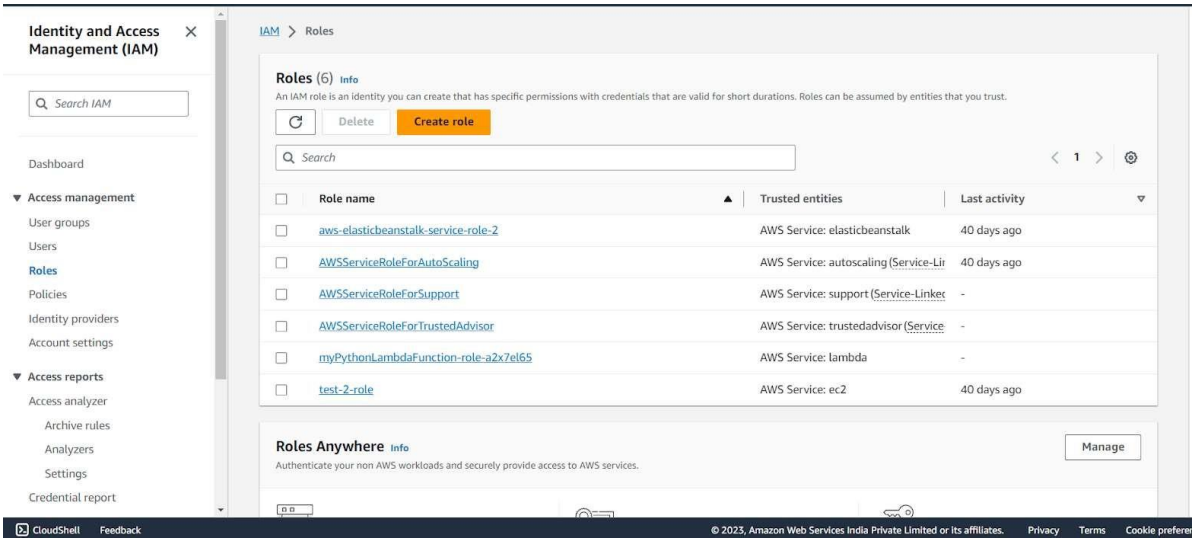


Conclusion: Thus, we understood AWS Lambda, its workflow, various functions and created our first Lambda functions using Python / Java / Nodejs.

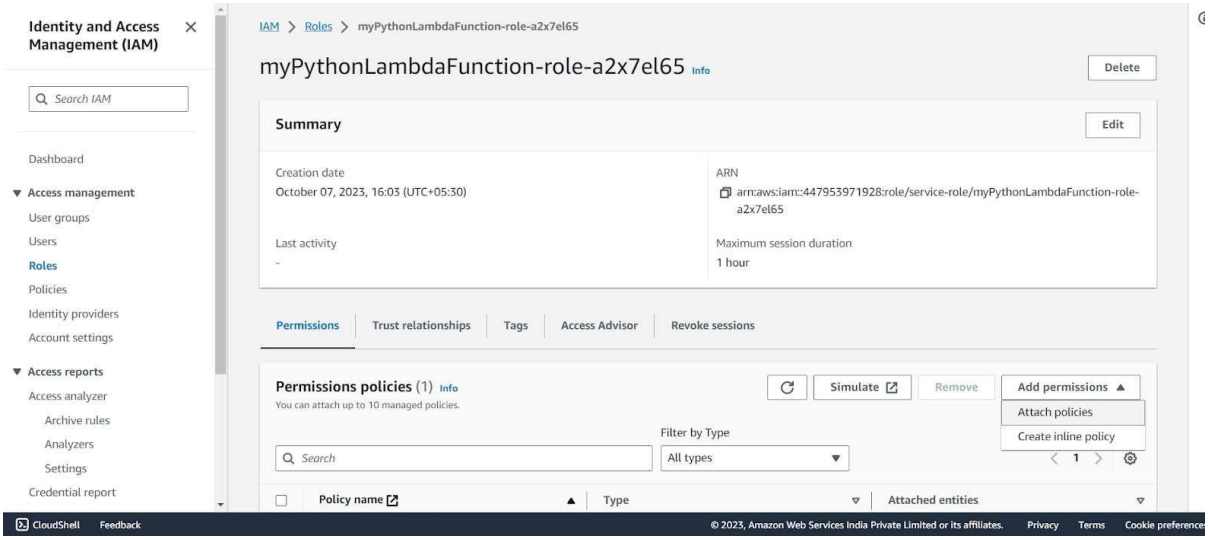
Adv. DevOps Exp. 12

Niraj S. Kothawade
D15A - 24

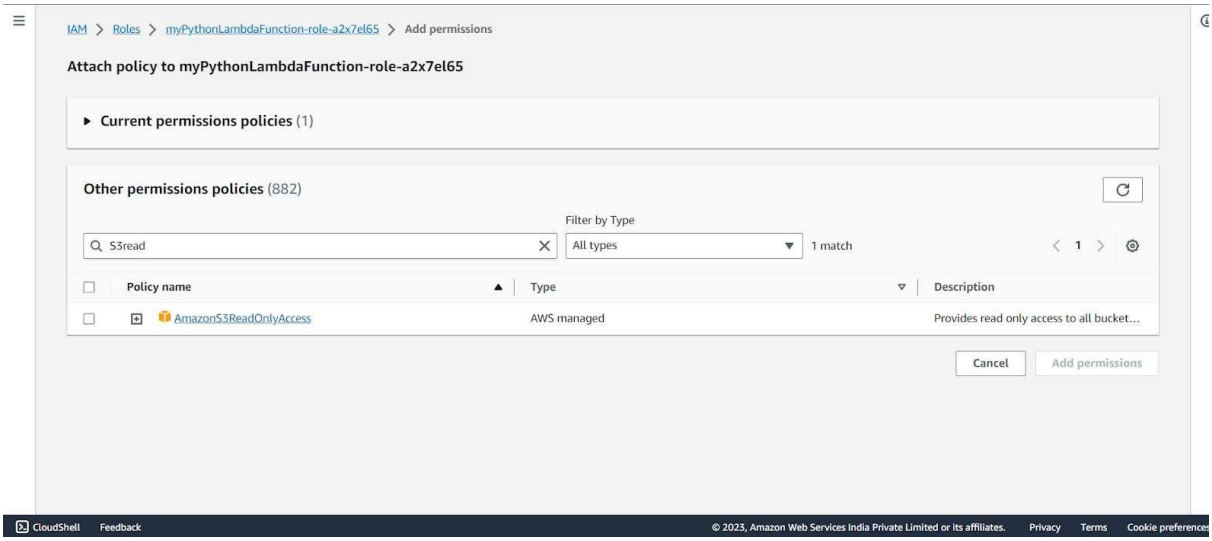
Step 1: Open up the IAM Console and under Roles, choose the Role we previously created for the Python Lambda Function (You can find your role name configuration of your Lambda function).



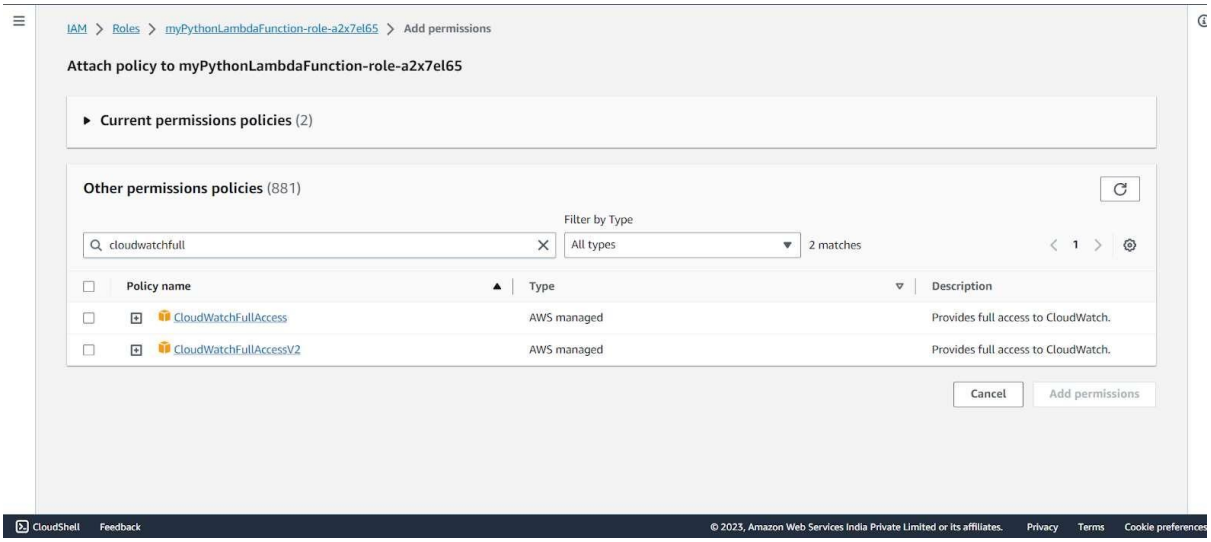
Step 2: Under Attach Policies, add S3-ReadOnly and CloudWatchFull permissions to this role.



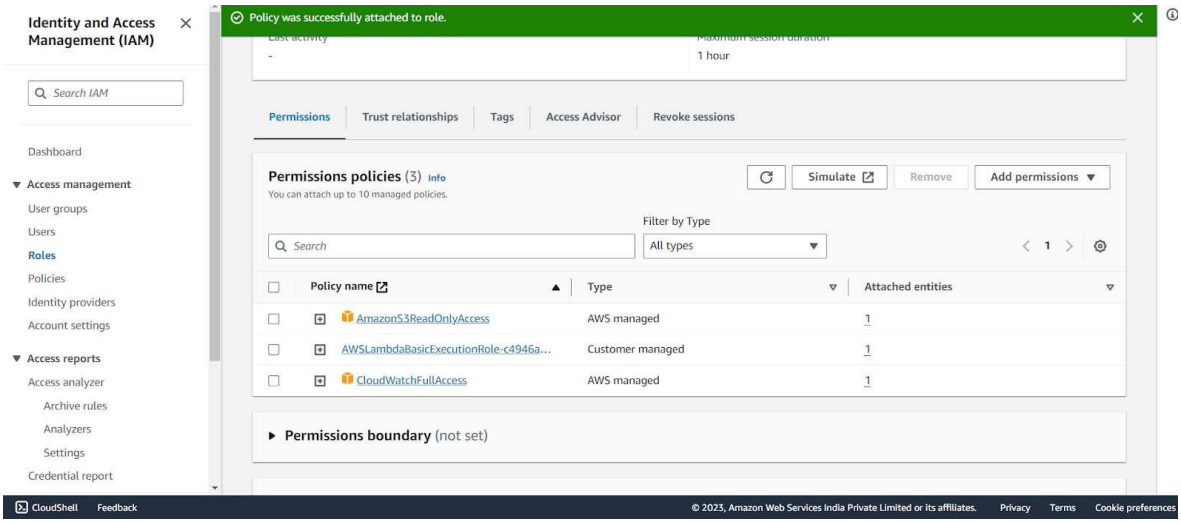
S3-ReadOnly



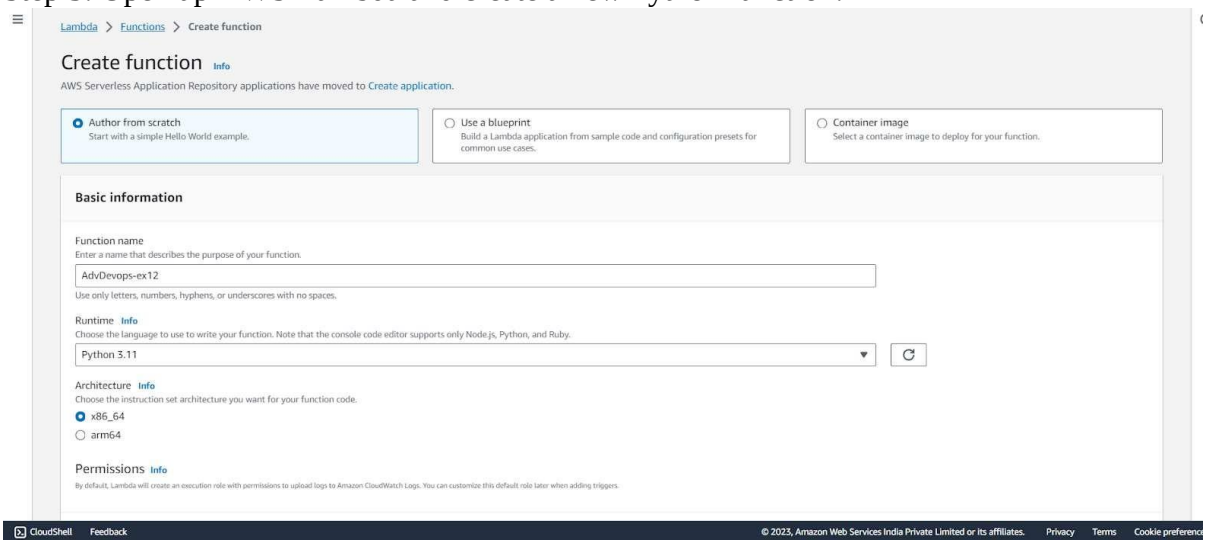
CloudWatchFull



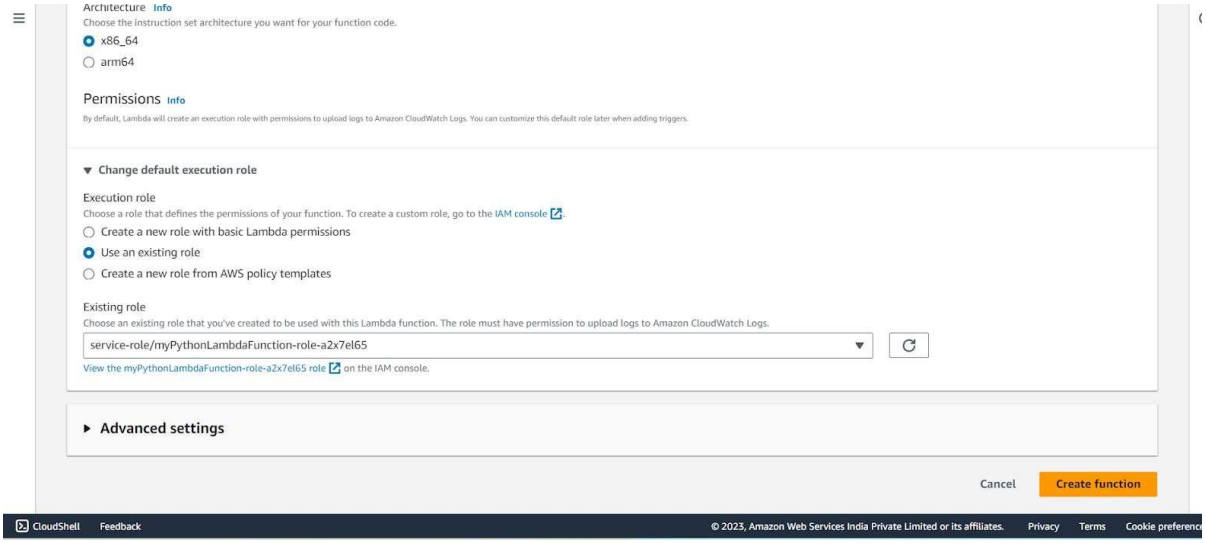
After successful attachment of policy you will see something like this you will beable to see the updated policies.



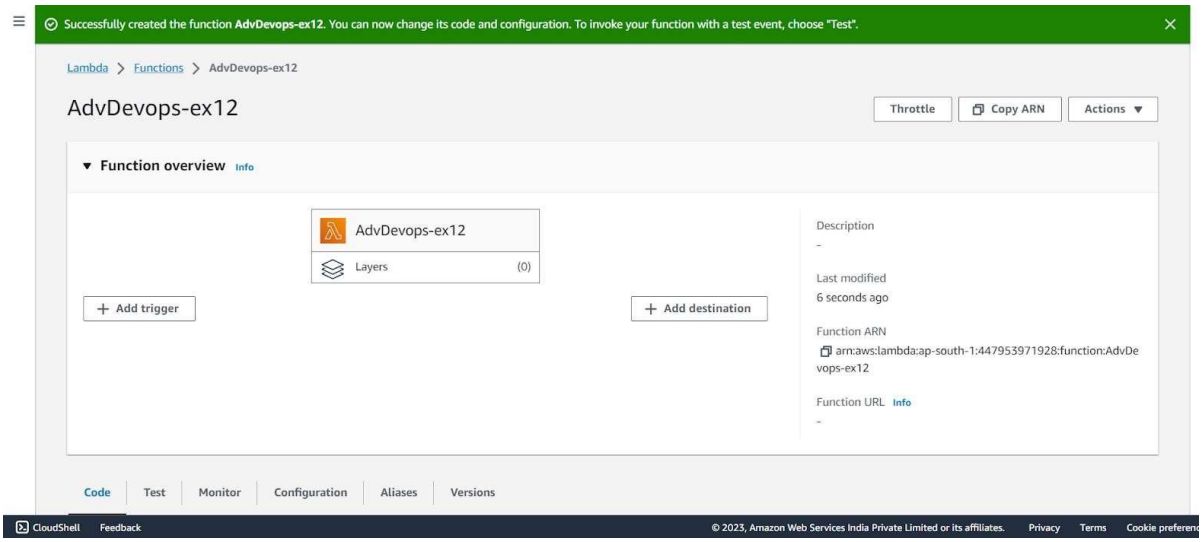
Step 3: Open up AWS Lambda and create a new Python function.



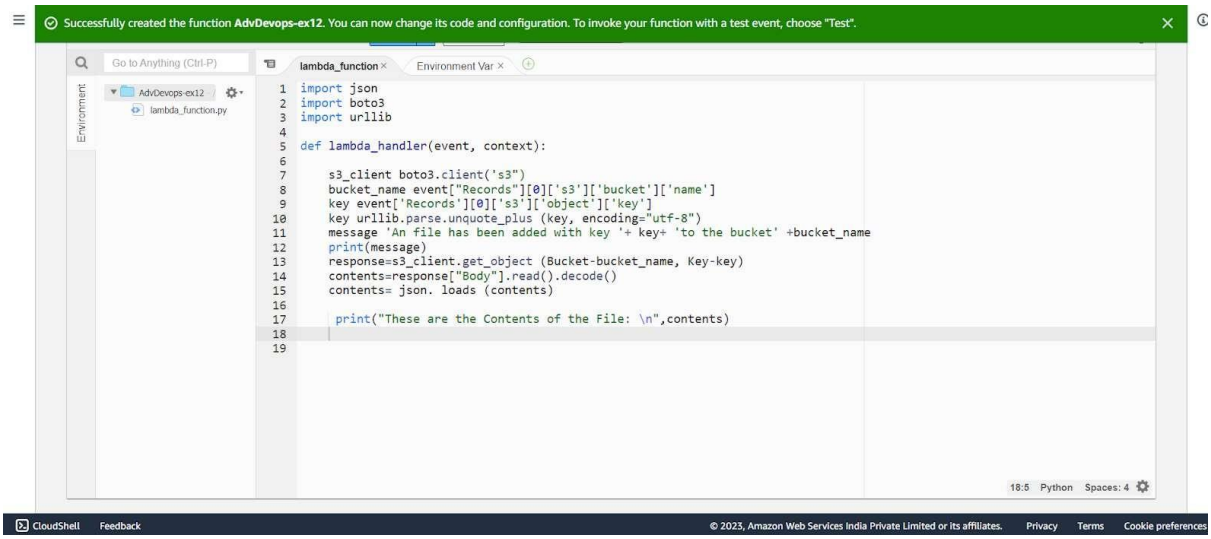
Under Execution Role, choose the existing role, then select the one which was previously created and to which we just added permissions.



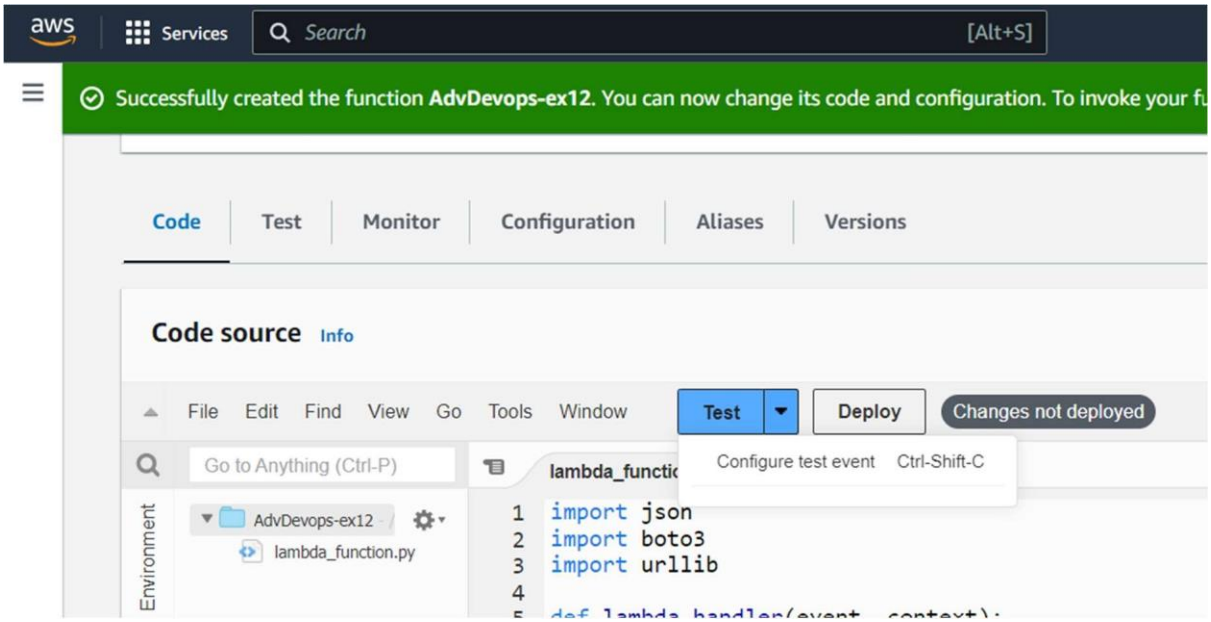
Step 4: The function is up and running.

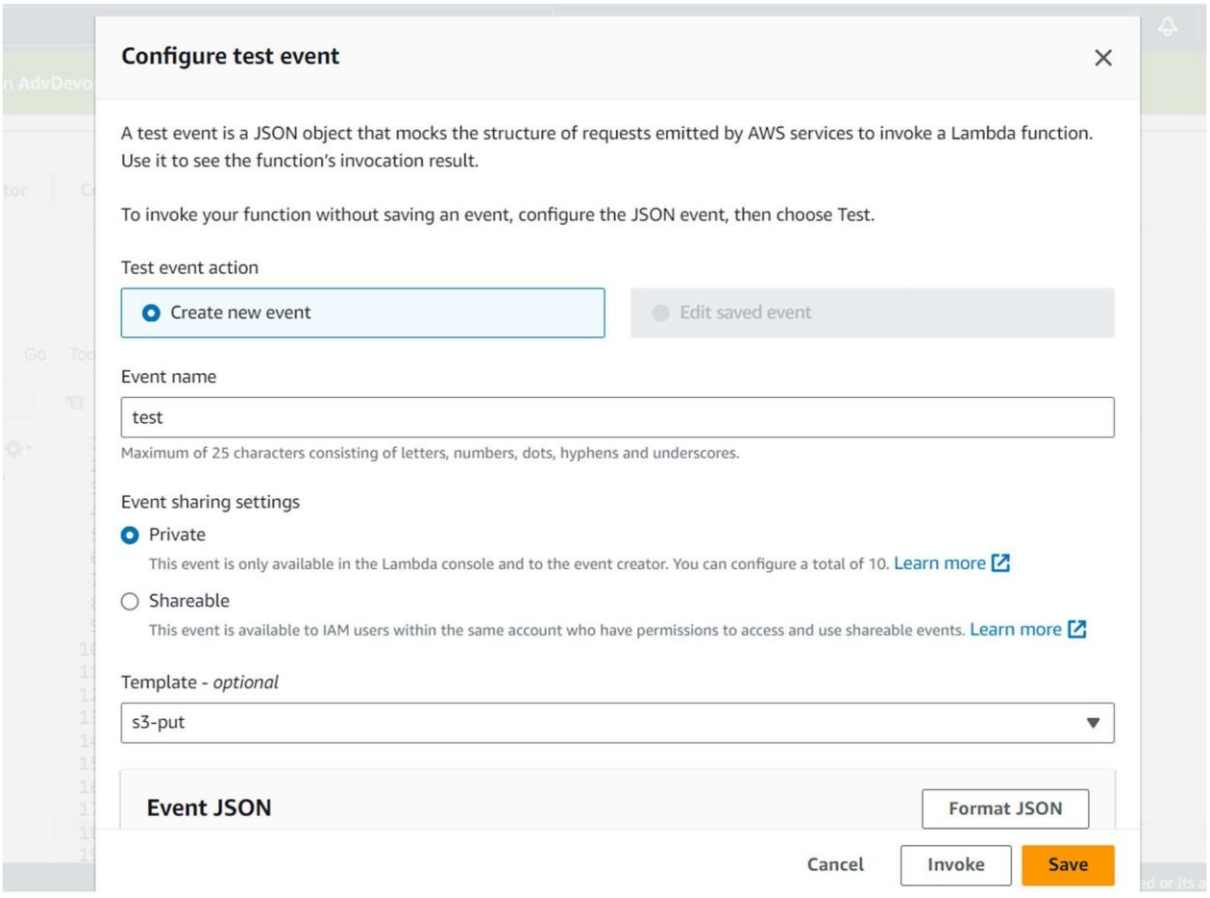


Step 5: Make the following changes to the function and click on the deploy button. This code basically logs a message and logs the contents of a JSON file which is uploaded to an S3 Bucket and then deploy the code.



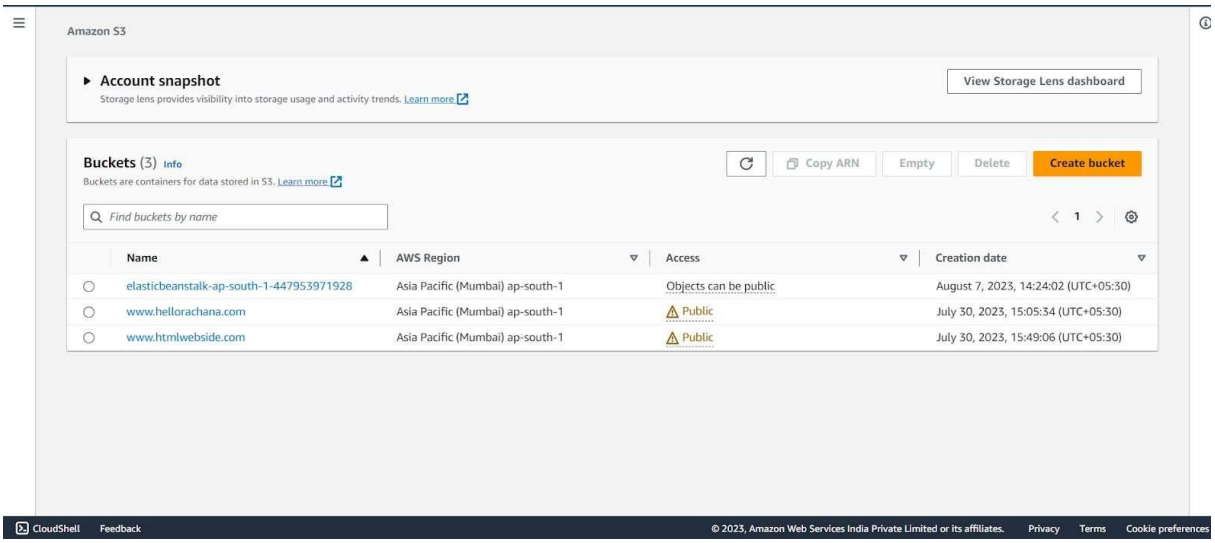
Step 6: Click on Test and choose the ‘S3 Put’ Template.



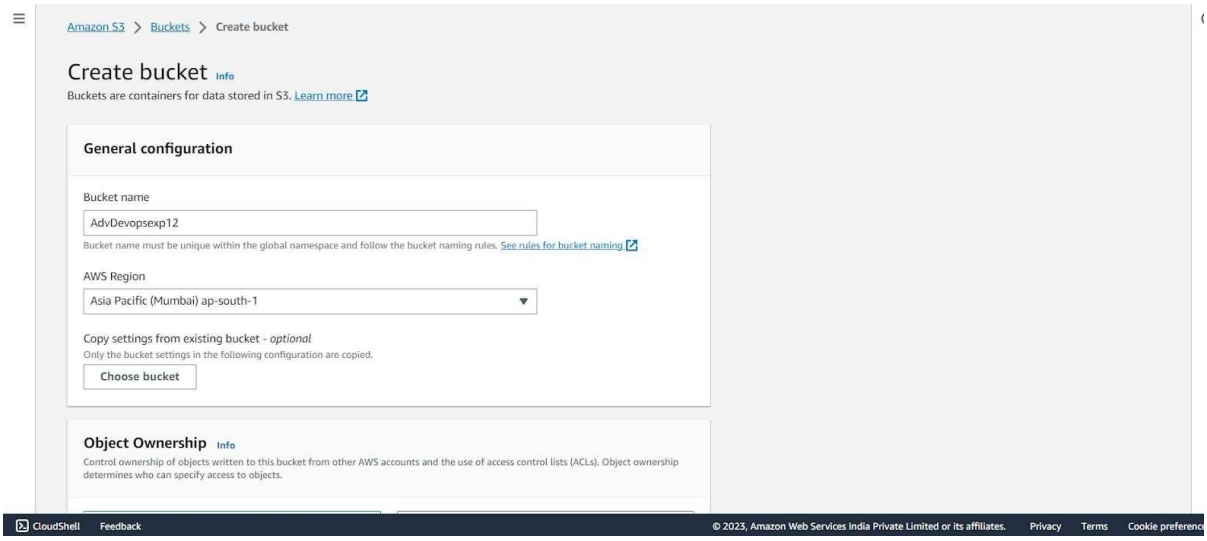


And Save it.

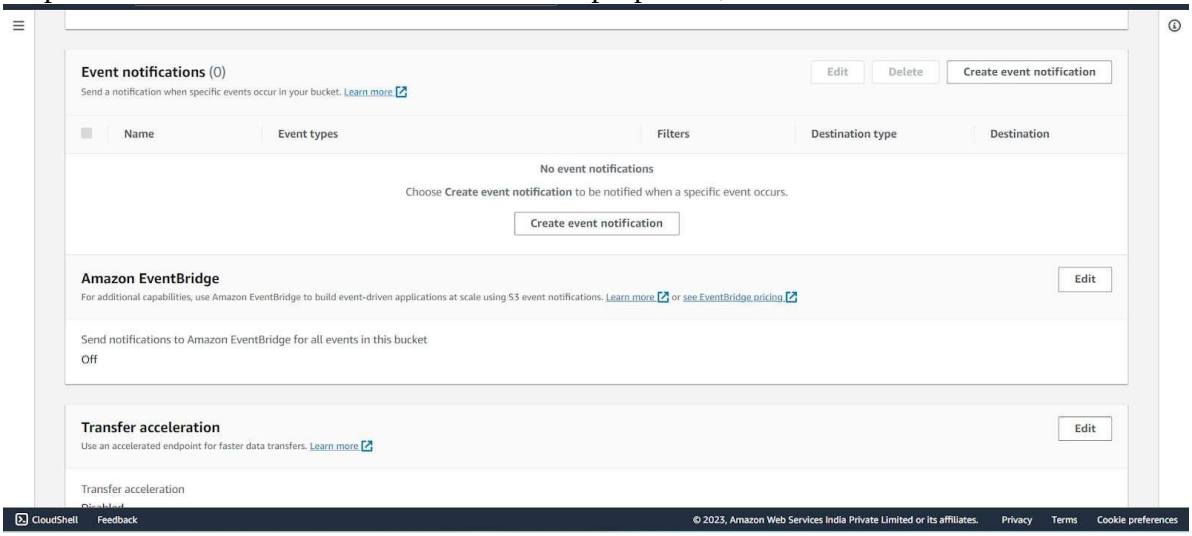
Step 7: Open up the S3 Console and create a new bucket.



Step 8: With all general settings, create the bucket in the same region as the function.

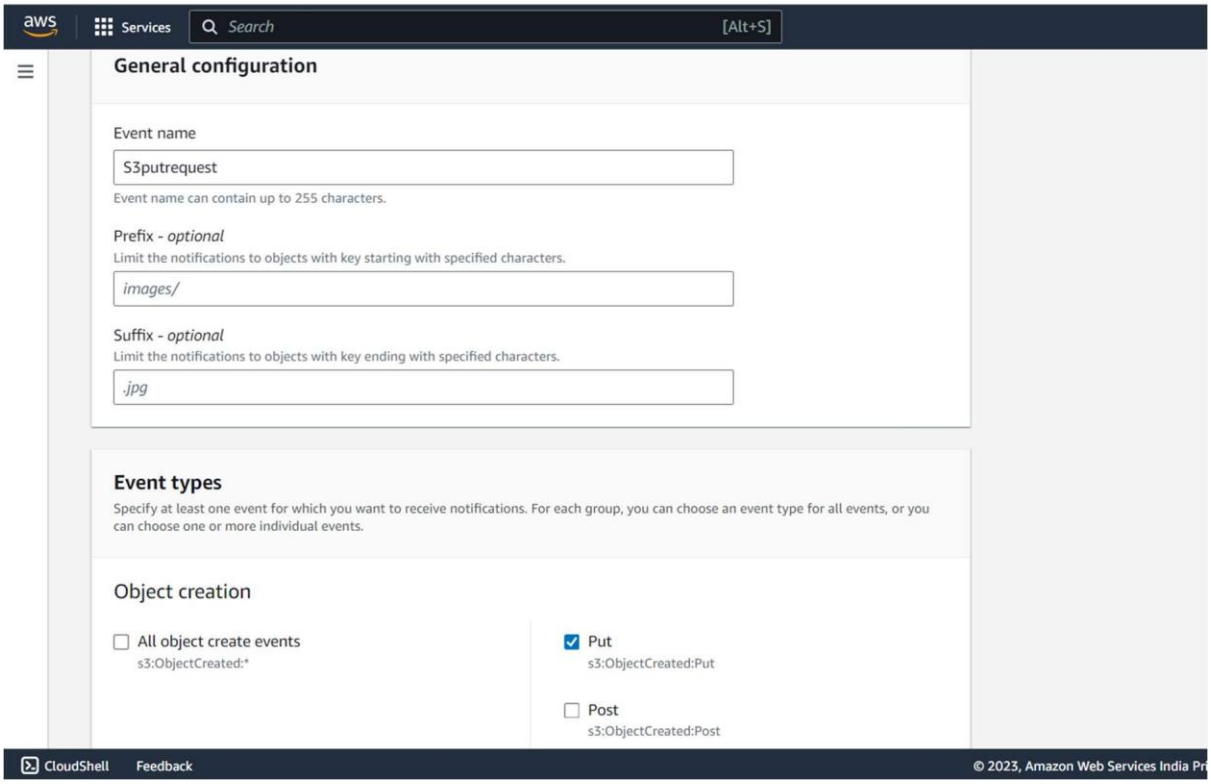


Step 9: Click on the created bucket and under properties, look for events.

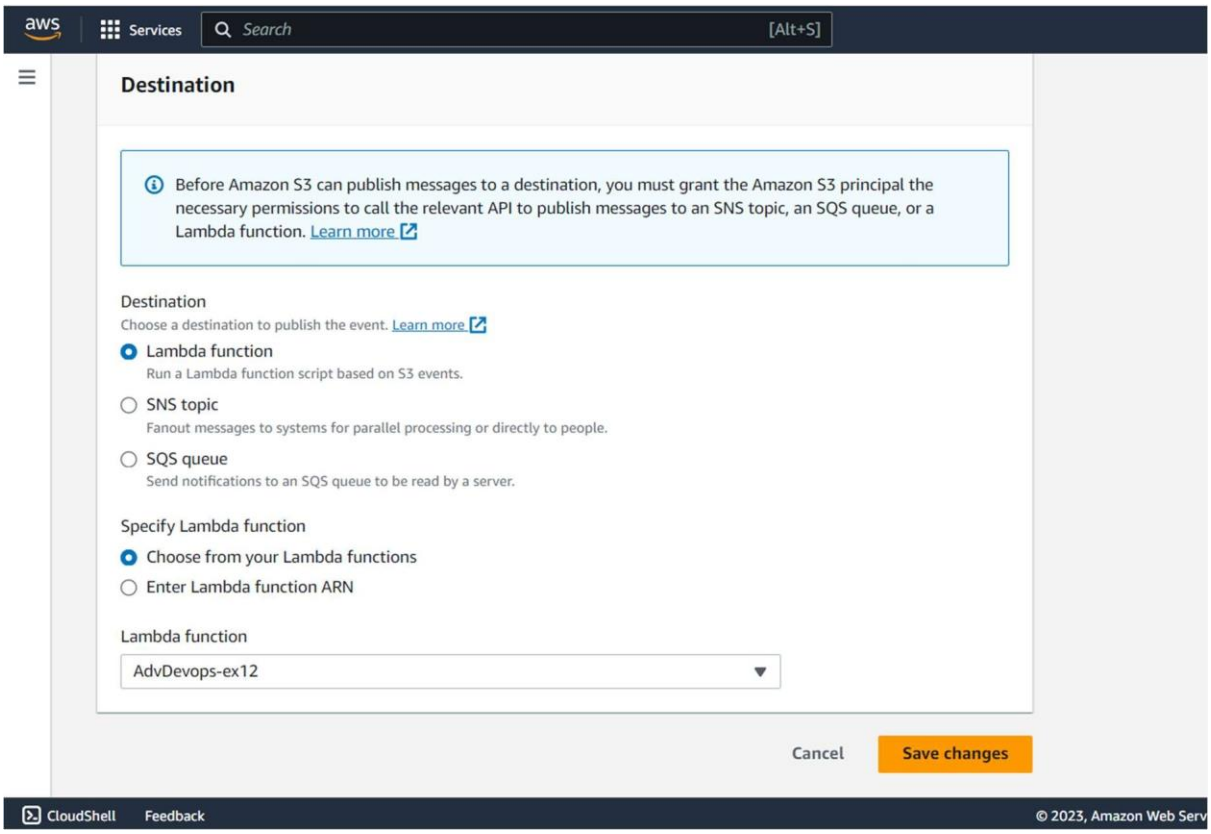


Click on Create Event Notification.

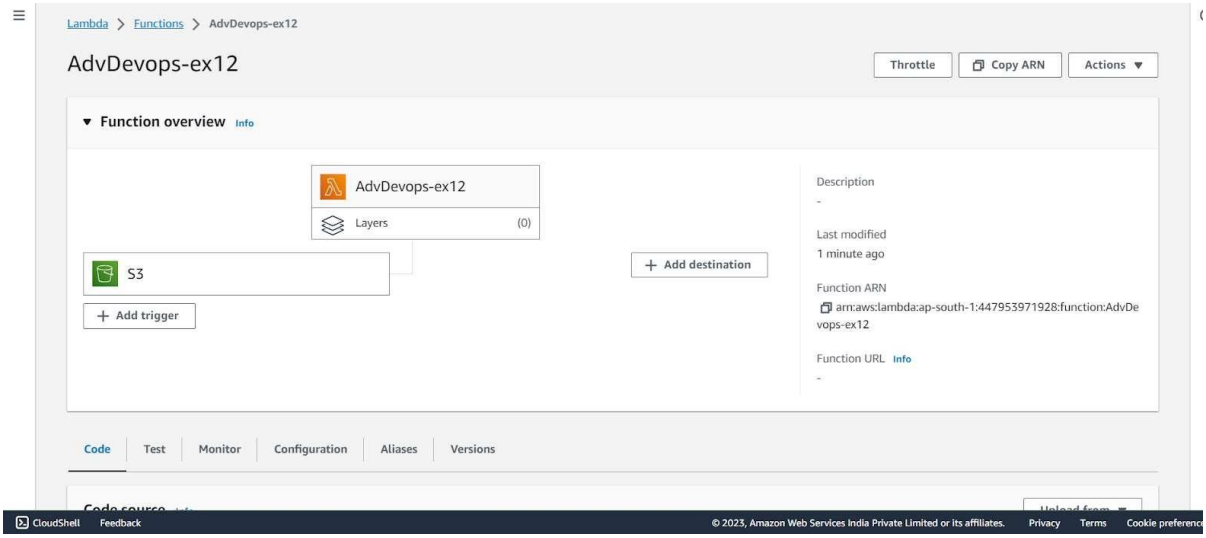
Step 10: Mention an event name and check Put under event types.



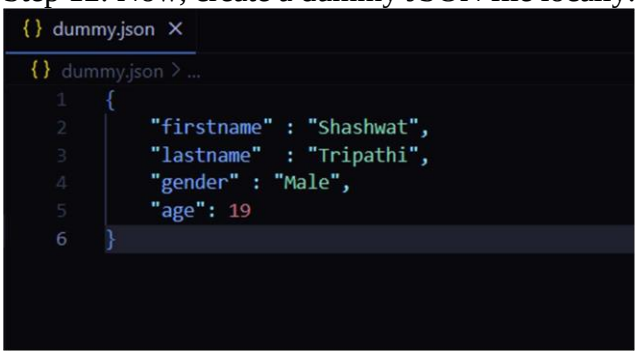
Choose Lambda function as destination and choose your lambda function and savethe changes.



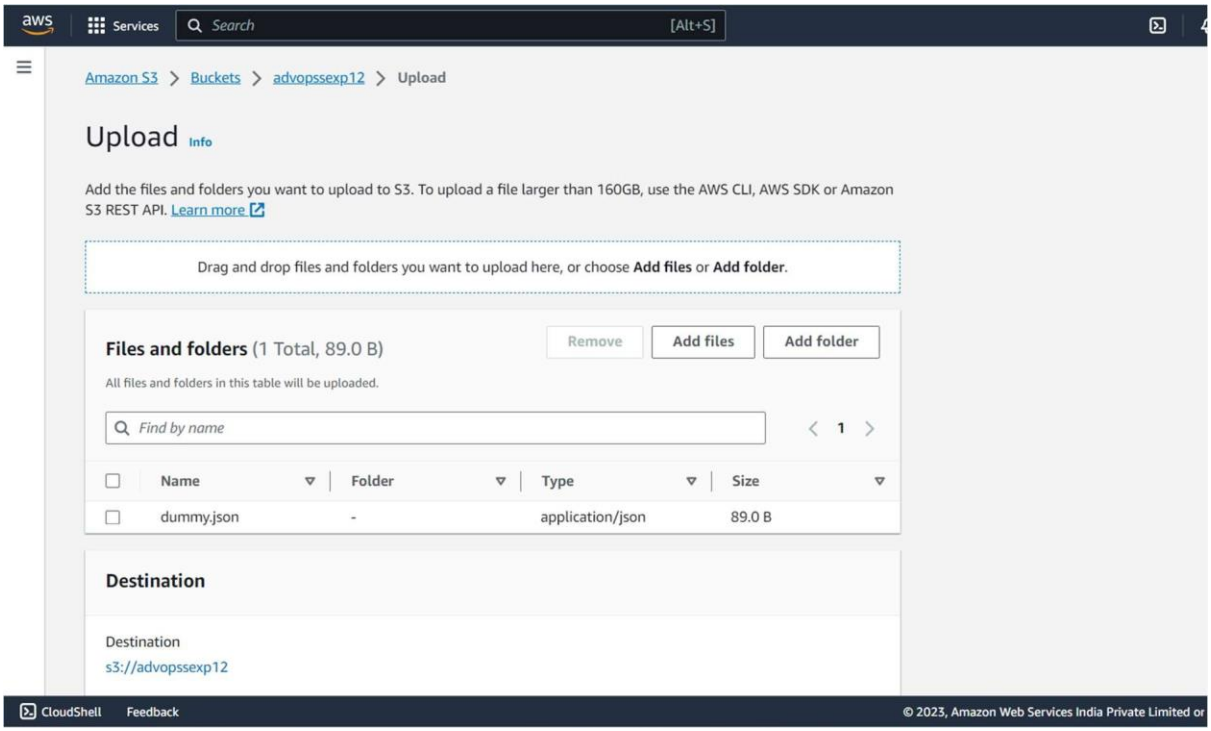
Step 11: Refresh the Lambda function console and you should be able to see an S3 Trigger in the overview.



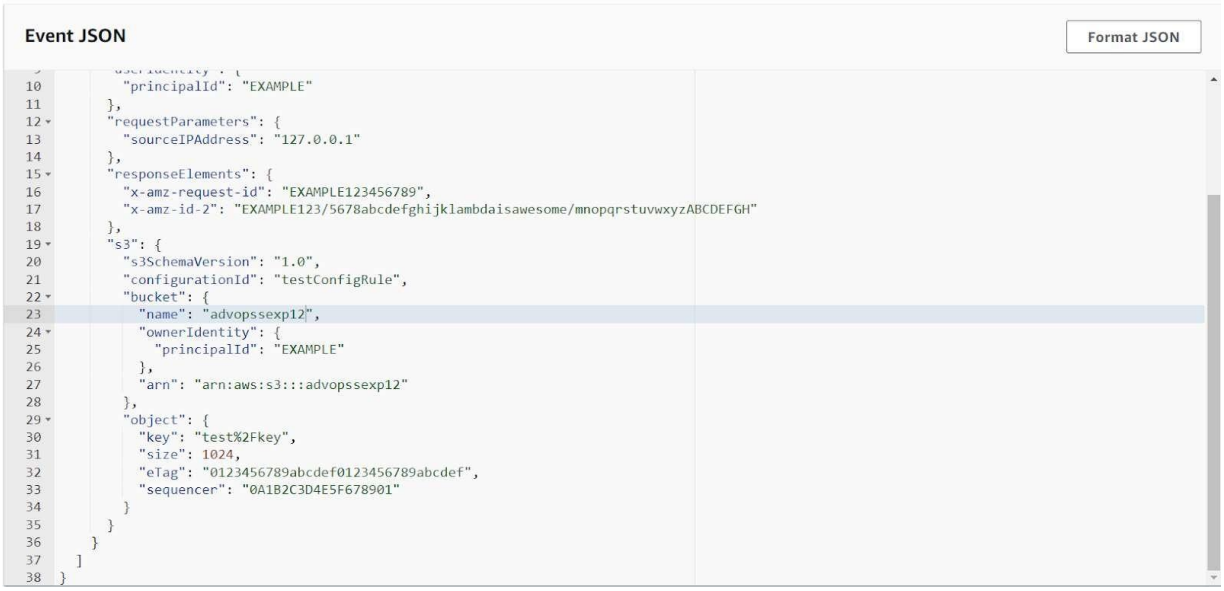
Step 12: Now, create a dummy JSON file locally.



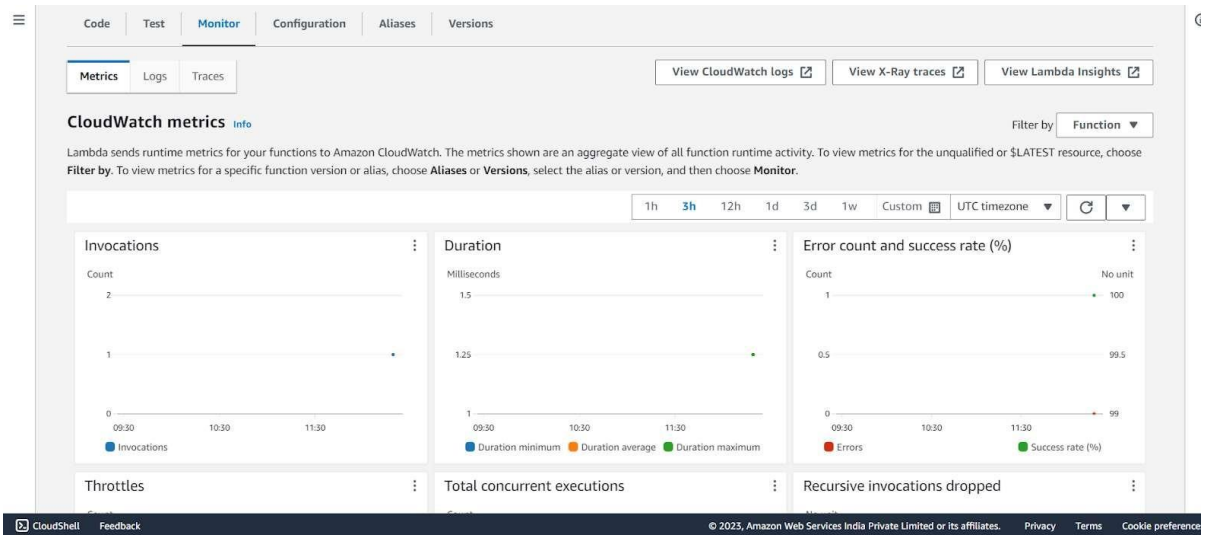
Step 13: Go back to your S3 Bucket and click on Add Files to upload a new file.
Step 14: Select the dummy data file from your computer and click Upload.



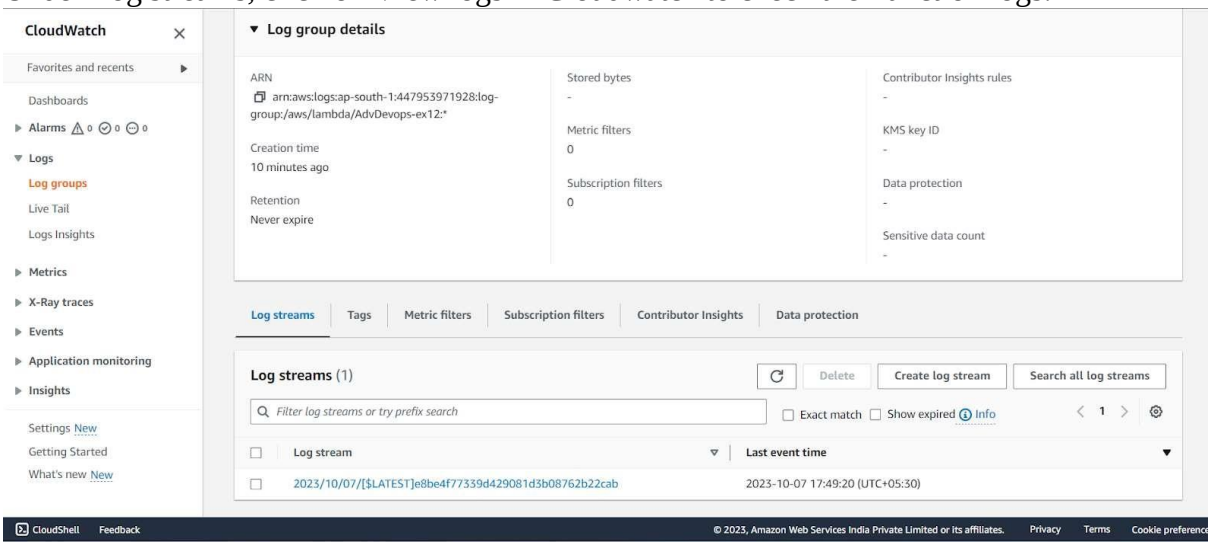
Step 15: After this make the necessary changes in the Test configuration file which we created it previously by replacing the Bucket Name and the ARN of Bucket.



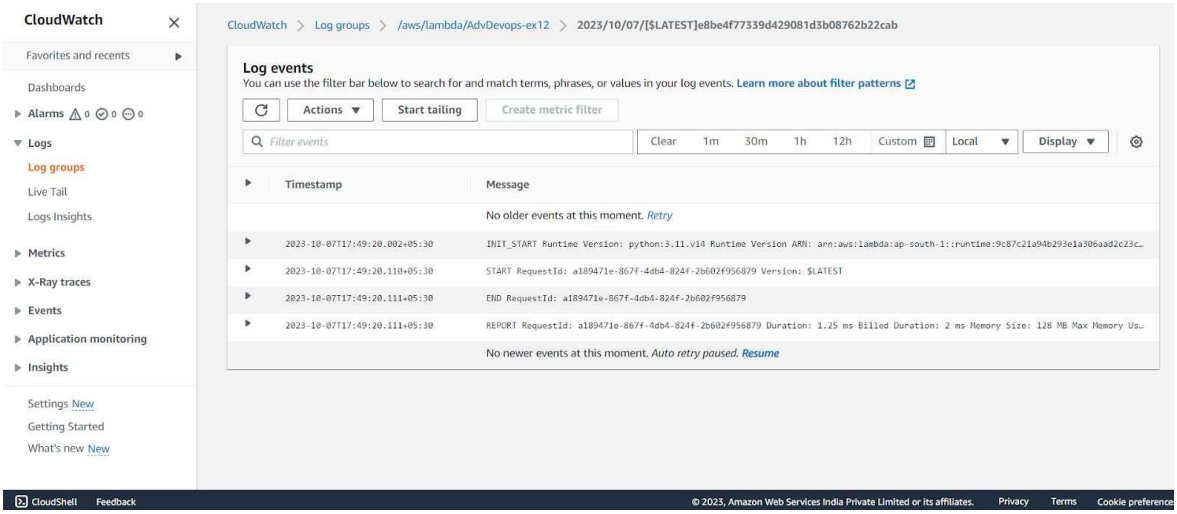
Step 16: Go back to your Lambda function , Refresh it and check the Monitor tab.



Under Log streams, click on View logs in Cloudwatch to check the Function logs.



Step 17: Click on this log Stream that was created to view what was logged by your function.



Conclusion: Thus, we have created a Lambda function which logs “An Image has been added” once you add an object to a specific bucket in S3.