Advanced DevOps Experiment-2

Aim: Using AWS CodePipeline, deploy Sample Application on Elastic BeanStalk using AWS CodeDeploy.

Theory:-

Elastic Beanstalk simplifies the process of deploying and managing applications on the AWS cloud, allowing developers to focus on building applications without needing to worry about the underlying infrastructure. AWS offers over 100 services, which can sometimes make it challenging to know exactly how to configure and provision the right resources. Elastic Beanstalk removes this complexity by automatically managing the necessary AWS resources—such as Amazon EC2 instances, load balancing, and scaling—while still giving you control and flexibility over your setup.

Elastic Beanstalk supports a variety of programming languages including Go, Java, .NET, Node.js, PHP, Python, Ruby, and Docker platforms. This means that if your app is built in one of these languages or platforms, Elastic Beanstalk can handle its deployment. For Docker containers, you can even use your own custom configurations and dependencies, expanding the potential use cases beyond those natively supported languages.

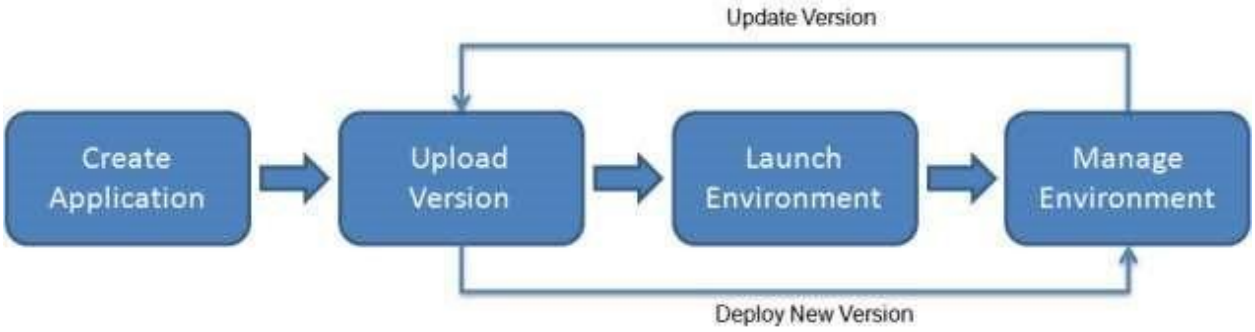
After your environment is set up, you can continue to manage and monitor it through the web interface or the CLI tools. You can scale your application by adjusting the number of EC2 instances or deploying new versions of your app with ease. The end result is a fully automated workflow that takes care of the technical heavy lifting, allowing you to deliver updates and maintain your app without diving deep into infrastructure management.

Here's a simplified breakdown of how Elastic Beanstalk works:

Create the application: Upload your code and define an application version.Elastic Beanstalk provisions resources: It automatically sets up the required AWS services and resources (EC2, load balancers, etc.).

Deploy and manage: You can monitor the application's performance, scale resources, and deploy new versions as needed.

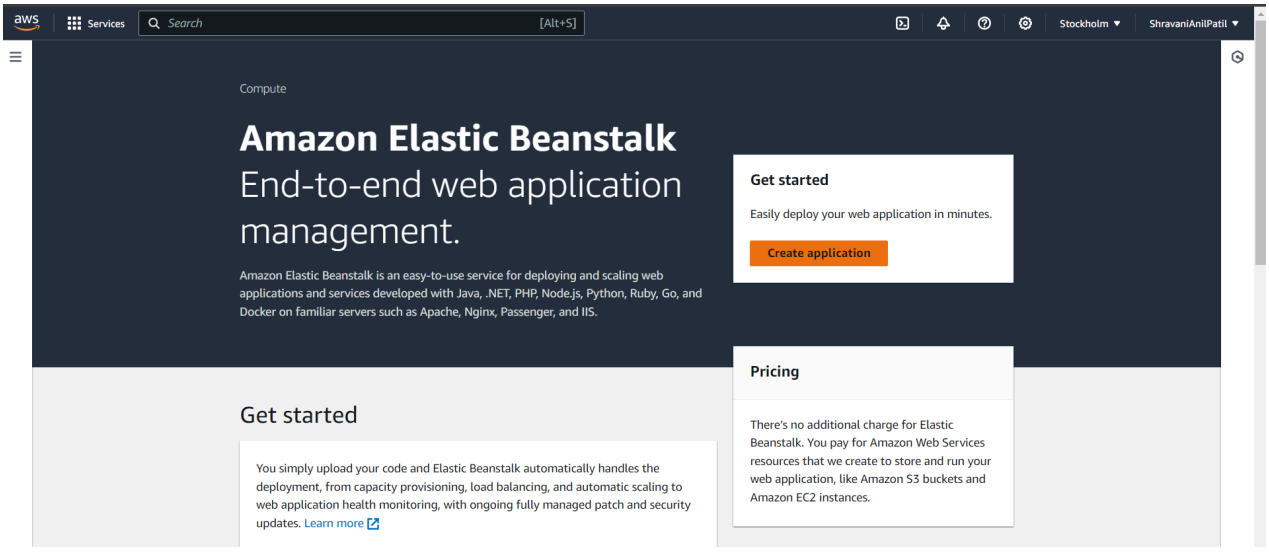
Elastic Beanstalk makes AWS cloud management simple, while keeping flexibility intact. It's like having a smart assistant for infrastructure that automates the complexities of cloud provisioning but still allows you to customize when needed.

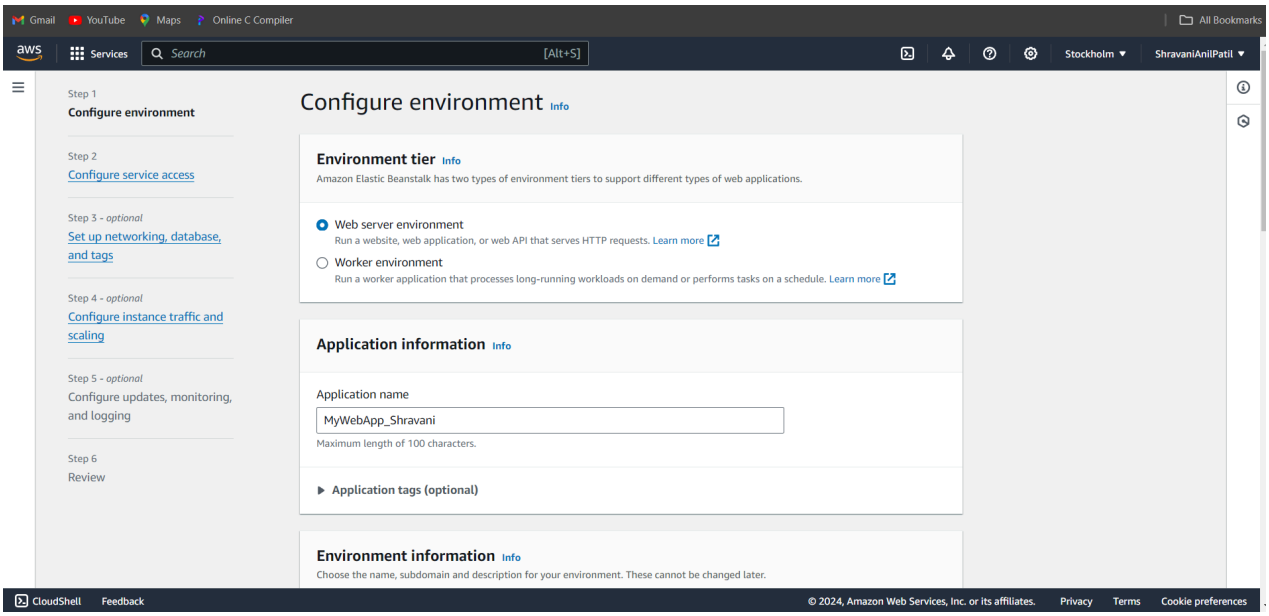


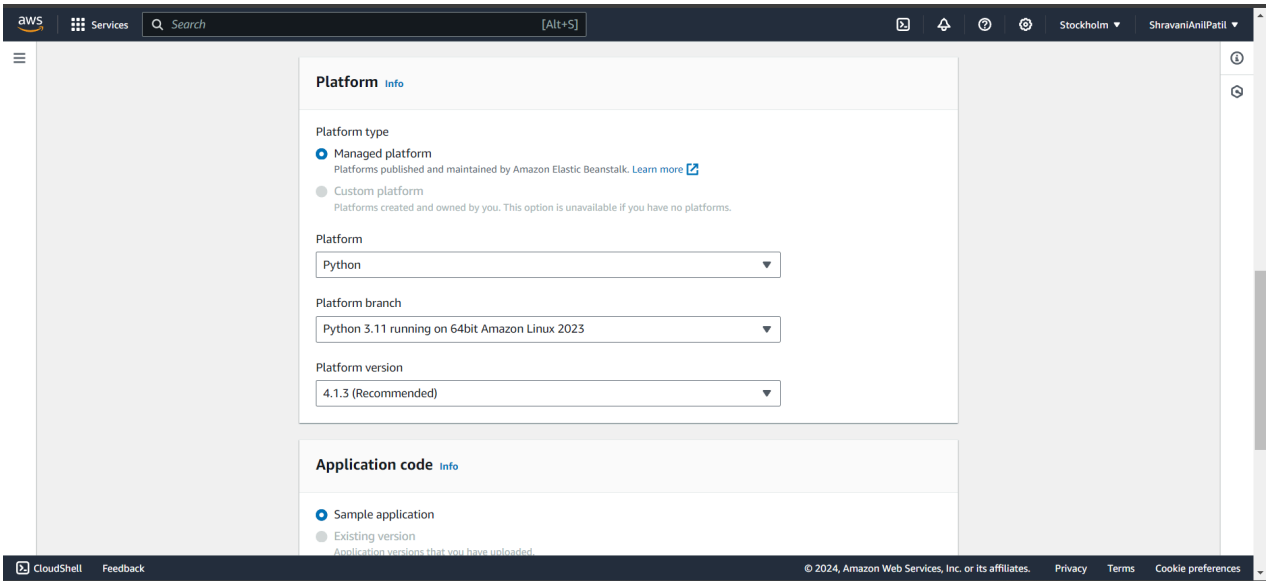
After you create and deploy your application, information about the application—including metrics, events, and environment status—is available through the Elastic Beanstalk console, APIs, or Command Line Interfaces, including the unified AWS CLI.

Implementation:-

Deploying basic web page on Elastic Beanstalk






aws
Services
Search
[Alt+S]
Stockholm
ShravaniAnilPatil
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)
Application code Info
Sample application
Existing version
Application versions that you have uploaded
CloudShell
Feedback
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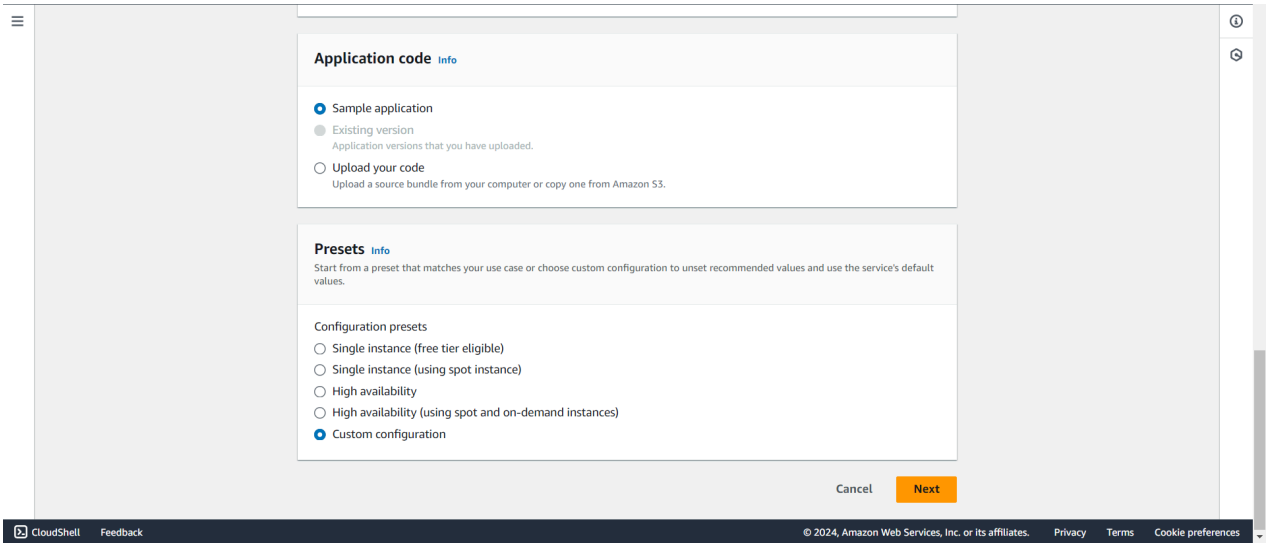
Application code Info
Sample application
Existing version
Application versions that you have uploaded.
Upload your code
Upload a source bundle from your computer or copy one from Amazon S3.
Presets Info
Start from a preset that matches your use case or choose custom configuration to unset recommended 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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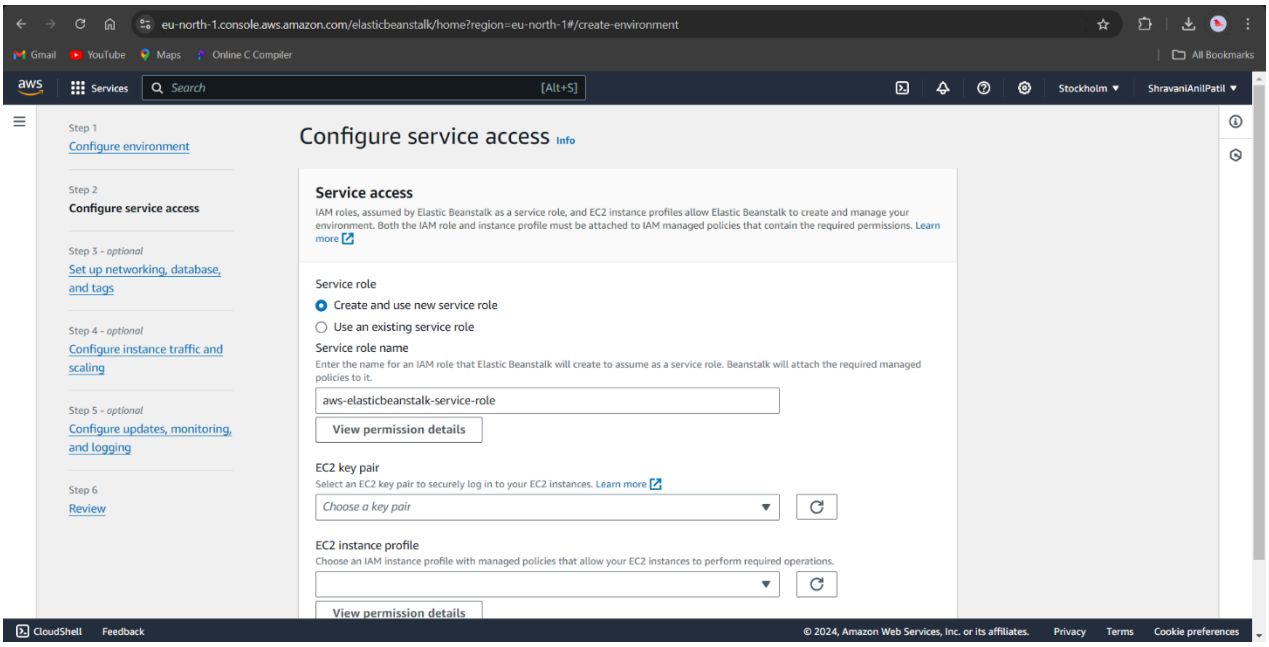
eu-north-1.console.aws.amazon.com/elasticbeanstalk/home?region=eu-north-1#/create-environment
Gmail
YouTube
Maps
Online C Compiler
All Bookmarks
aws
Services
Search
[Alt+S]
Stockholm
ShravaniAnilPatil
Step 1
Configure environment
Step 2
Configure service access
Step 3 - optional
Set up networking, database, 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
Service role name
Enter the name for an IAM role that Elastic Beanstalk will create to assume as a service role. Beanstalk will attach the required managed policies to it.
aws-elasticbeanstalk-service-role
View permission details
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.
View permission details
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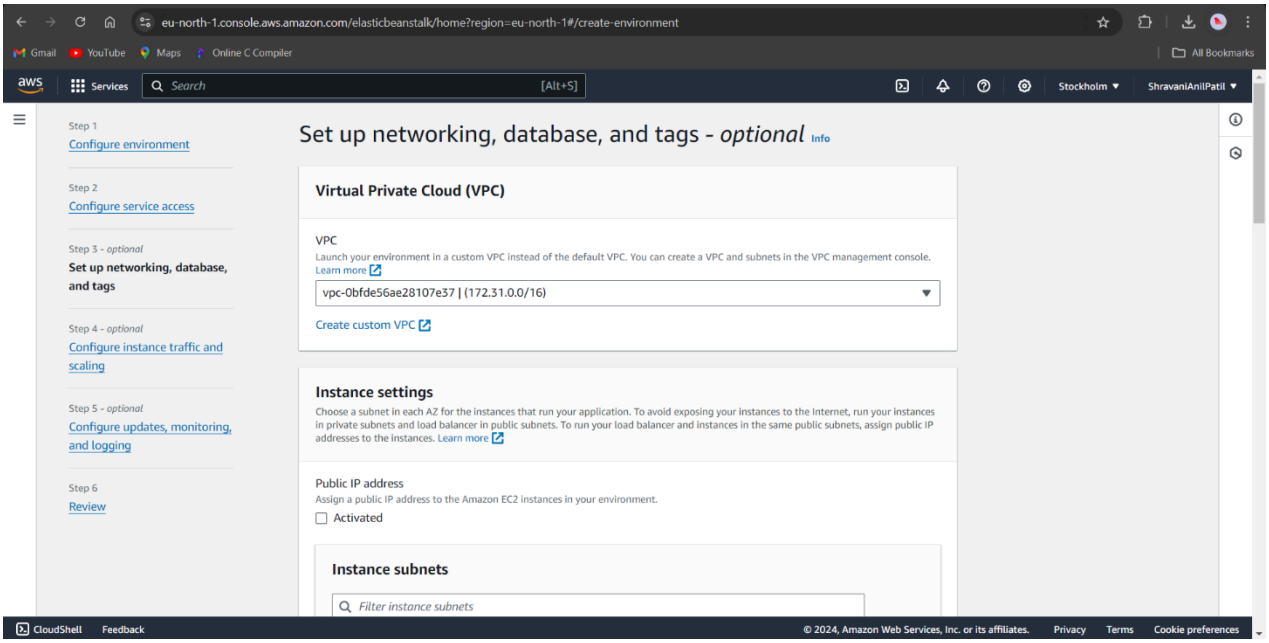
eu-north-1.console.aws.amazon.com/elasticbeanstalk/home?region=eu-north-1#/create-environment
Gmail YouTube Maps Online C Compiler
All Bookmarks
aws Services Search [Alt+S]
Stockholm ShravaniAnilPatil
Step 1
Configure environment
Step 2
Configure service access
Step 3 - optional
Set up networking, database, and tags
Step 4 - optional
Configure instance traffic and scaling
Step 5 - optional
Configure updates, monitoring, and logging
Step 6
Review
Set up networking, database, and tags - optional Info
Virtual Private Cloud (VPC)
VPC
Launch your environment in a custom VPC instead of the default VPC. You can create a VPC and subnets in the VPC management console.
Learn more
vpc-0bfde56ae28107e37 | (172.31.0.0/16)
Create custom VPC
Instance settings
Choose a subnet in each AZ for the instances that run your application. To avoid exposing your instances to the Internet, run your instances in private subnets and load balancer in public subnets. To run your load balancer and instances in the same public subnets, assign public IP addresses to the instances. Learn more
Public IP address
Assign a public IP address to the Amazon EC2 instances in your environment.
Activated
Instance subnets
Filter instance subnets
CloudShell Feedback
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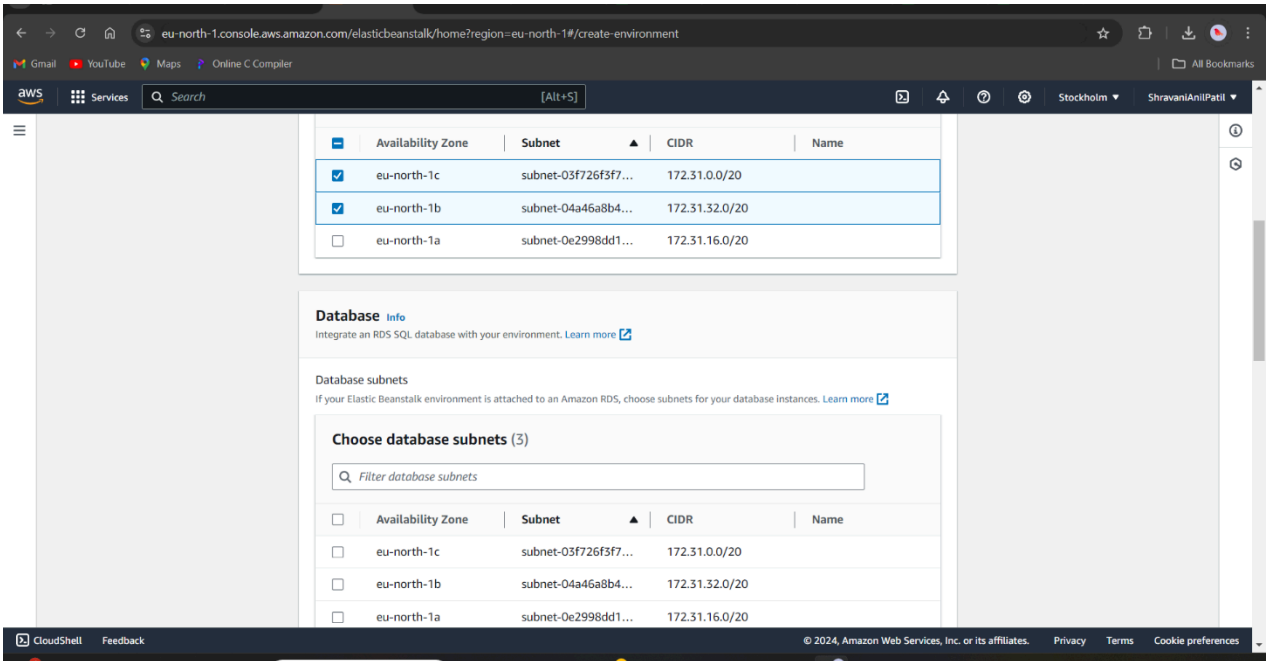
eu-north-1.console.aws.amazon.com/elasticbeanstalk/home?region=eu-north-1#/create-environment
Availability Zone Subnet CIDR Name
eu-north-1c subnet-03f726f3f7... 172.31.0.0/20
eu-north-1b subnet-04a46a8b4... 172.31.32.0/20
eu-north-1a subnet-0e2998dd1... 172.31.16.0/20
Database Info
Integrate an RDS SQL database with your environment. Learn more
Database subnets
If your Elastic Beanstalk environment is attached to an Amazon RDS, choose subnets for your database instances. Learn more
Choose database subnets (3)
Filter database subnets
Availability Zone Subnet CIDR Name
eu-north-1c subnet-03f726f3f7... 172.31.0.0/20
eu-north-1b subnet-04a46a8b4... 172.31.32.0/20
eu-north-1a subnet-0e2998dd1... 172.31.16.0/20
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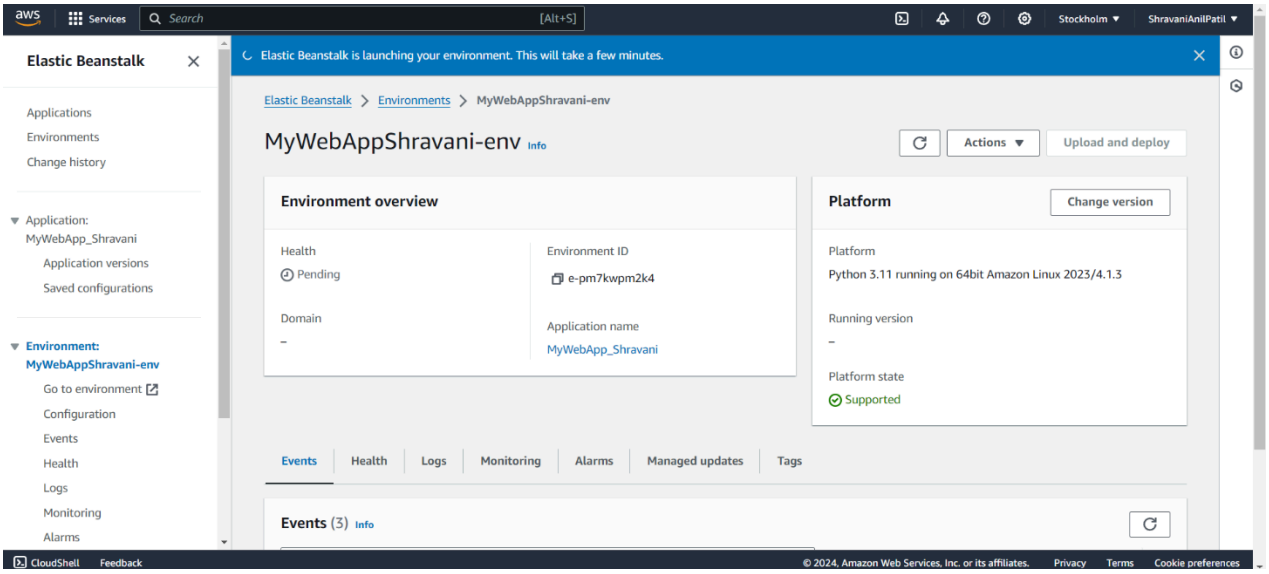
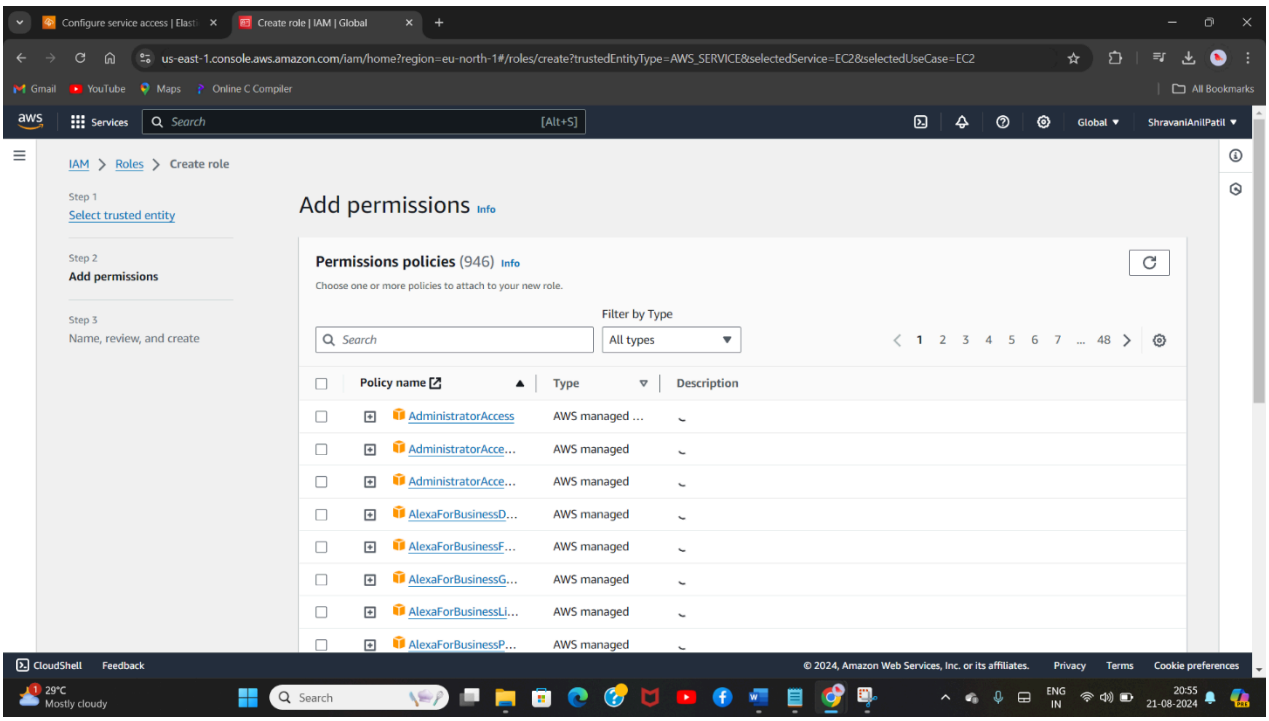

Elastic Beanstalk
Elastic Beanstalk is launching your environment. This will take a few minutes.
Elastic Beanstalk > Environments > MyWebAppShravani-env
MyWebAppShravani-env Info
Actions
Upload and deploy
Environment overview
Health
Pending
Environment ID
e-pm7kwpm2k4
Domain
-
Application name
MyWebApp_Shravani
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 (3) Info


IAM > Roles > Create role
Step 1
Select trusted entity
Step 2
Add permissions
Step 3
Name, review, and create
Add permissions Info
Permissions policies (946) Info
Choose one or more policies to attach to your new role.
Filter by Type
Search
All types
Policy name
Type
Description
AdministratorAccess
AWS managed ...
AdministratorAcce...
AWS managed
AlexaForBusinessD...
AlexaForBusinessF...
AlexaForBusinessG...
AlexaForBusinessLi...
AlexaForBusinessP...
CloudShell
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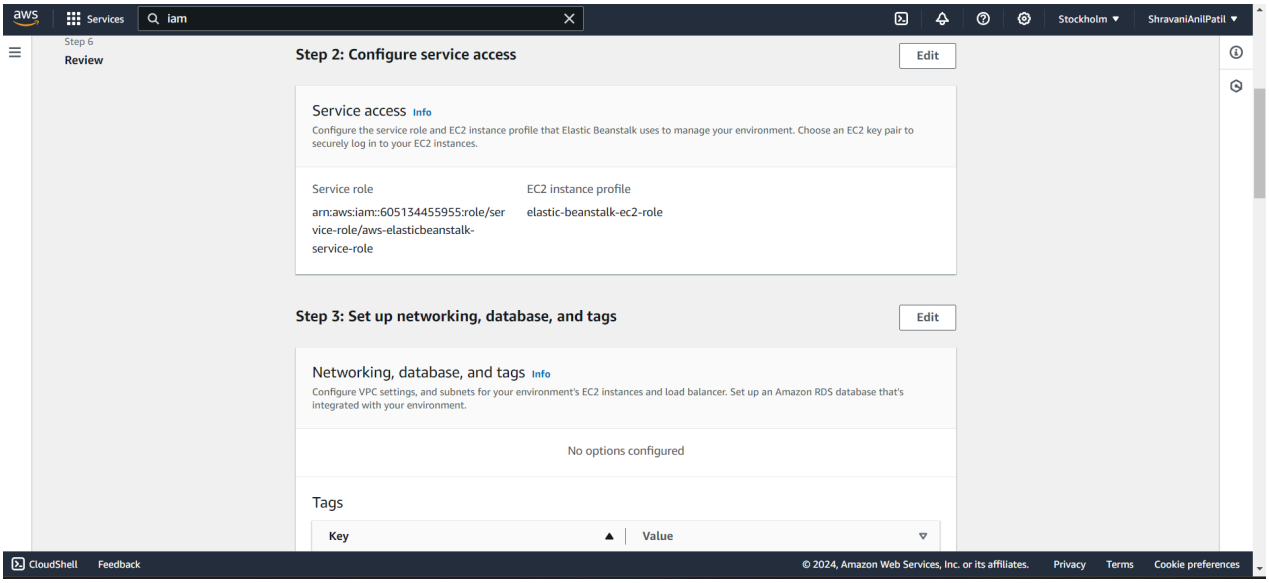
Services
iam
Stockholm
ShravaniAnilPatil
Step 6
Review
Step 2: Configure service access
Edit
Service access Info
Configure the service role and EC2 instance profile that Elastic Beanstalk uses to manage your environment. Choose an EC2 key pair to securely log in to your EC2 instances.
Service role
arn:aws:iam::605134455955:role/service-role/aws-elasticbeanstalk-service-role
EC2 instance profile
elastic-beanstalk-ec2-role
Step 3: Set up networking, database, and tags
Edit
Networking, database, and tags Info
Configure VPC settings, and subnets for your environment's EC2 instances and load balancer. Set up an Amazon RDS database that's integrated with your environment.
No options configured
Tags
Key
Value
CloudShell
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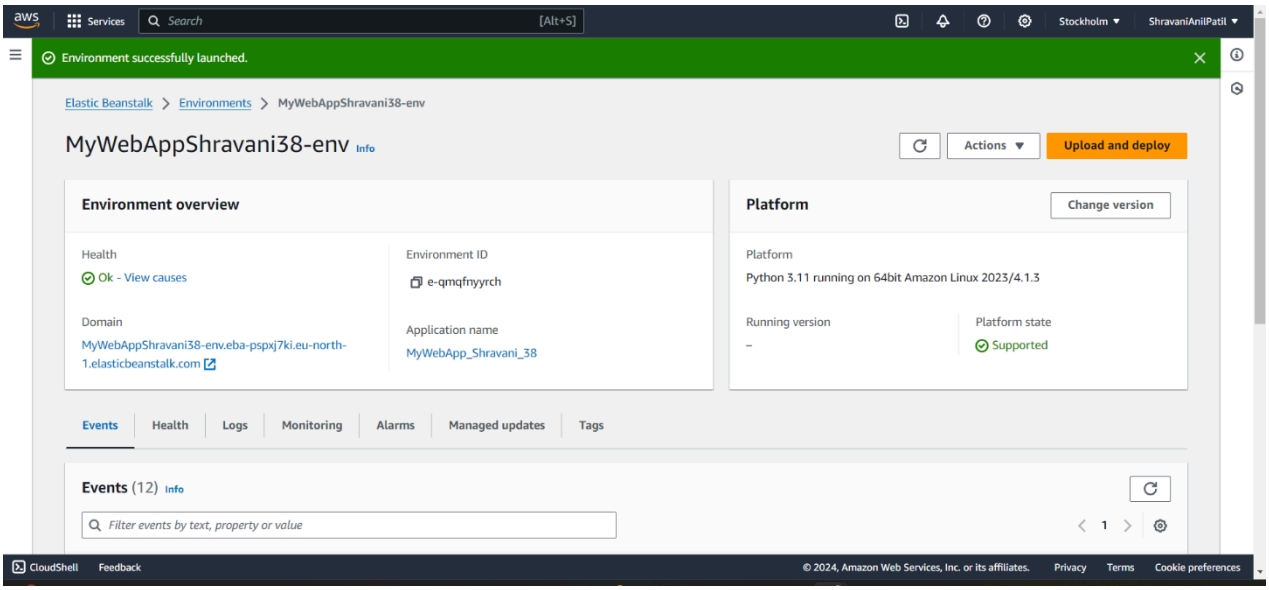
Services
Search
[Alt+S]
Stockholm
ShravaniAnilPatil
Environment successfully launched.
Elastic Beanstalk
Environments
MyWebAppShravani38-env
MyWebAppShravani38-env Info
Actions
Upload and deploy
Environment overview
Health
Ok - View causes
Environment ID
e-qmqfnyyrch
Domain
MyWebAppShravani38-env.eba-pspxj7ki.eu-north-1.elasticbeanstalk.com
Application name
MyWebApp_Shravani_38
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
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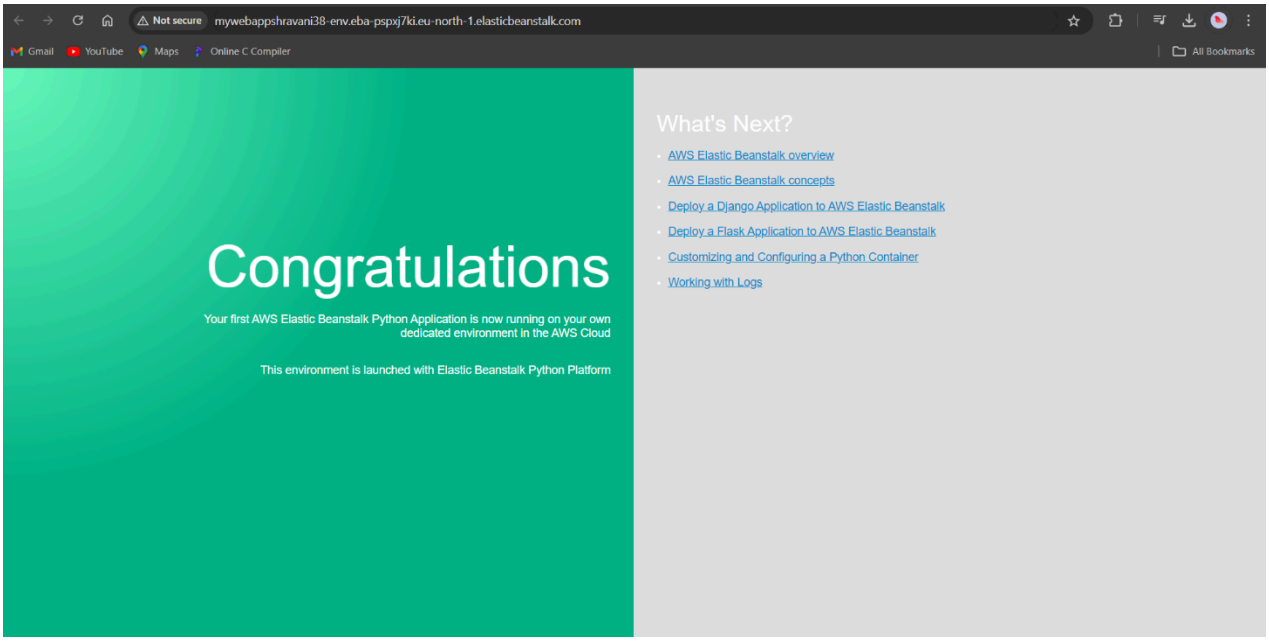
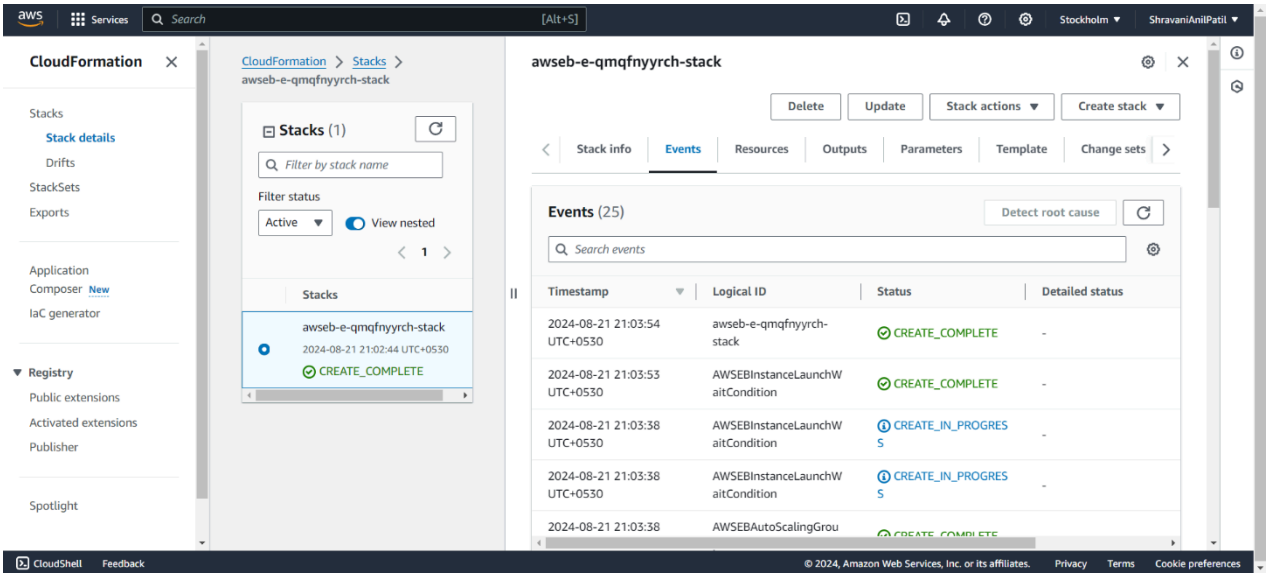

Not secure
mywebappshravani38-env.eba-pspxj7ki.eu-north-1.elasticbeanstalk.com
Gmail
YouTube
Maps
Online C Compiler
All Bookmarks
Congratulations
Your first AWS Elastic Beanstalk Python Application is now running on your own dedicated environment in the AWS Cloud
This environment is launched with Elastic 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


aws
Services
Search
[Alt+S]
Stockholm
ShravaniAnilPatil
CloudFormation
Stacks
Stack details
Drifts
StackSets
Exports
Application Composer New
IaC generator
Registry
Public extensions
Activated extensions
Publisher
Spotlight
CloudFormation > Stacks >
awseb-e-qmqfnyyrch-stack
Stacks (1)
Filter by stack name
Filter status
Active
View nested
Stacks
awseb-e-qmqfnyyrch-stack
2024-08-21 21:02:44 UTC+0530
CREATE_COMPLETE
awseb-e-qmqfnyyrch-stack
Delete
Update
Stack actions
Create stack
Stack info
Events
Resources
Outputs
Parameters
Template
Change sets
Events (25)
Detect root cause
Search events
Timestamp
Logical ID
Status
Detailed status
2024-08-21 21:03:54 UTC+0530
awseb-e-qmqfnyyrch-stack
CREATE_COMPLETE
2024-08-21 21:03:53 UTC+0530
AWSEBInstanceLaunchWaitCondition
CREATE_COMPLETE
2024-08-21 21:03:38 UTC+0530
AWSEBInstanceLaunchWaitCondition
CREATE_IN_PROGRESS
2024-08-21 21:03:38 UTC+0530
AWSEBInstanceLaunchWaitCondition
CREATE_IN_PROGRESS
2024-08-21 21:03:38
AWSEBAutoScalingGrou
CloudShell
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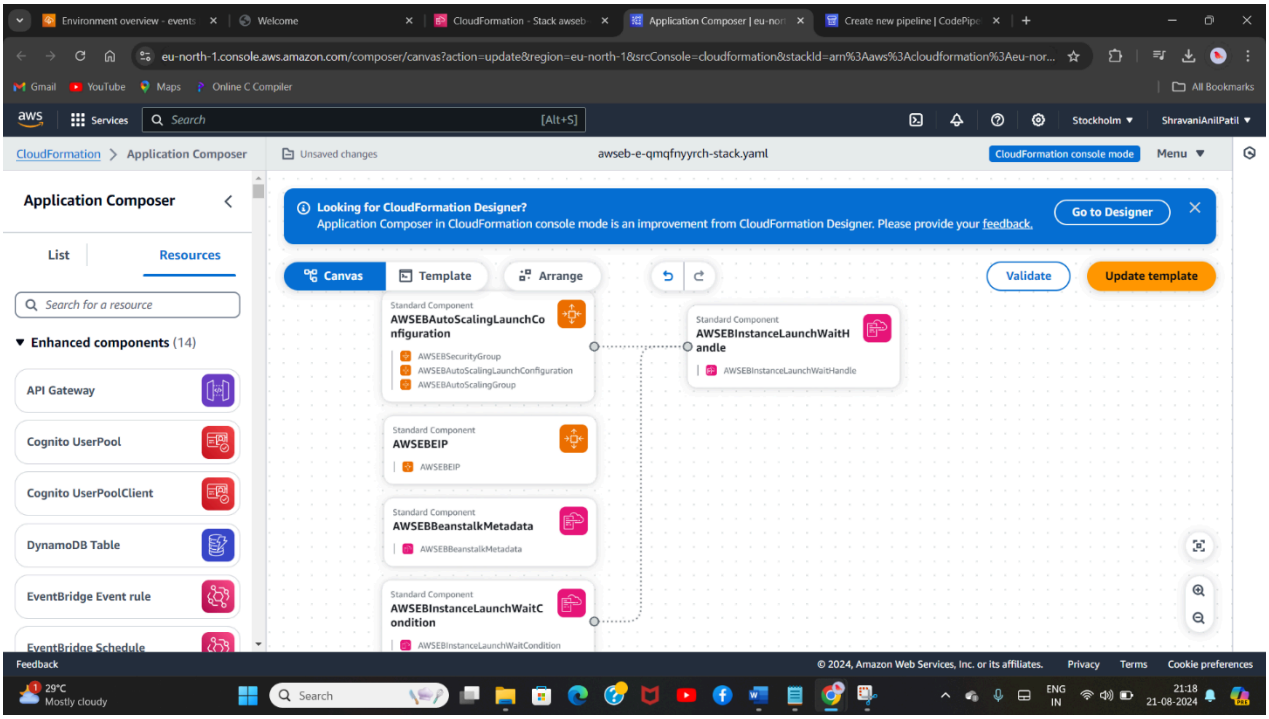
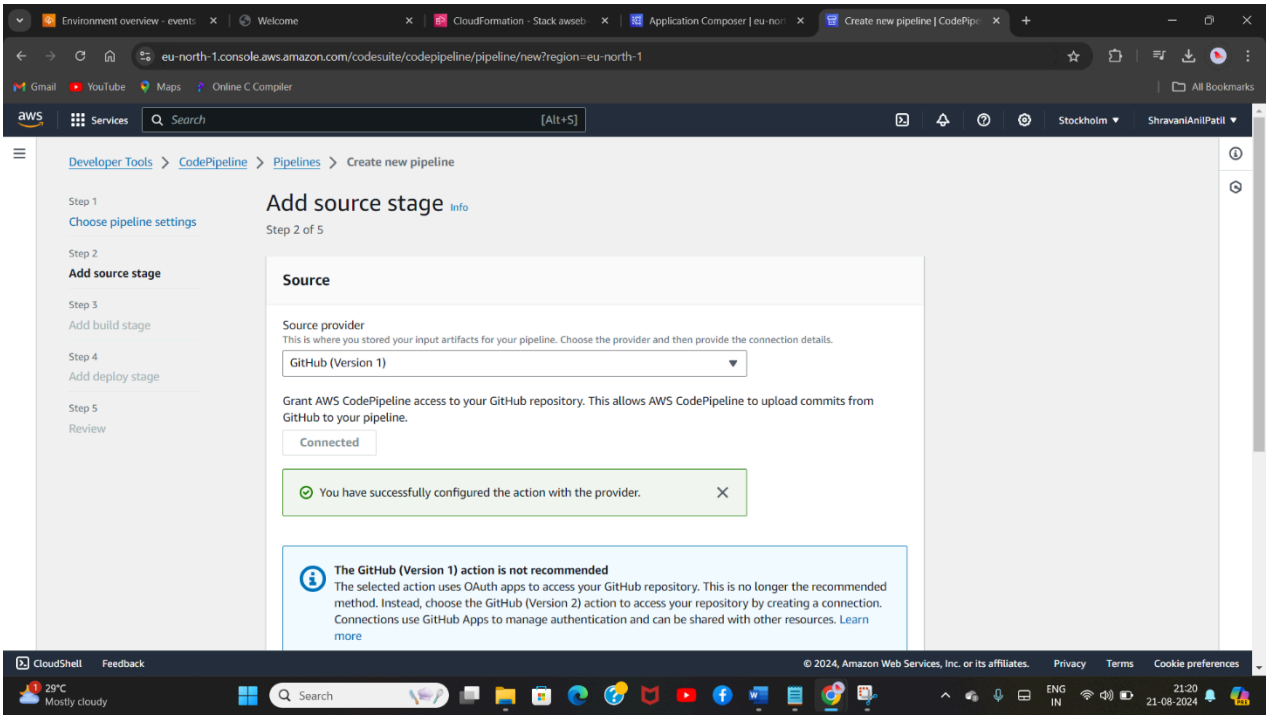
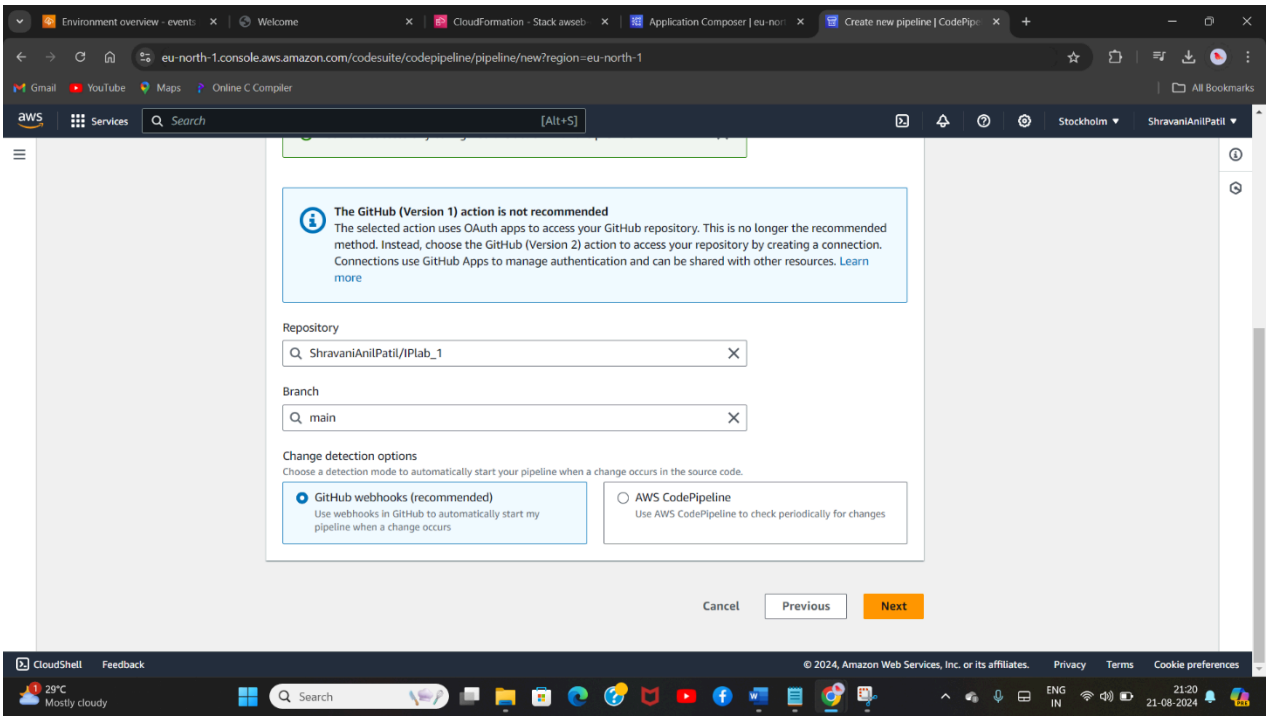

Application Composer
Looking for CloudFormation Designer?
Application Composer in CloudFormation console mode is an improvement from CloudFormation Designer. Please provide your feedback.
Go to Designer
Canvas
Template
Arrange
Validate
Update template
List
Resources
Search for a resource
Enhanced components (14)
API Gateway
Cognito UserPool
Cognito UserPoolClient
DynamoDB Table
EventBridge Event rule
AWSEBAutoScalingLaunchConfiguration
AWSEBInstanceLaunchWaitHandle
AWSEBEIP
AWSEBBeanstalkMetadata
AWSEBInstanceLaunchWaitCondition


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


Environment overview - events
Welcome
CloudFormation - Stack awseb
Application Composer | eu-nort
Create new pipeline | CodePipe
eu-north-1.console.aws.amazon.com/codesuite/codepipeline/pipeline/new?region=eu-north-1
Gmail
YouTube
Maps
Online C Compiler
All Bookmarks
aws
Services
Search
[Alt+S]
Stockholm
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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
ShravaniAnilPatil/IPlab_1
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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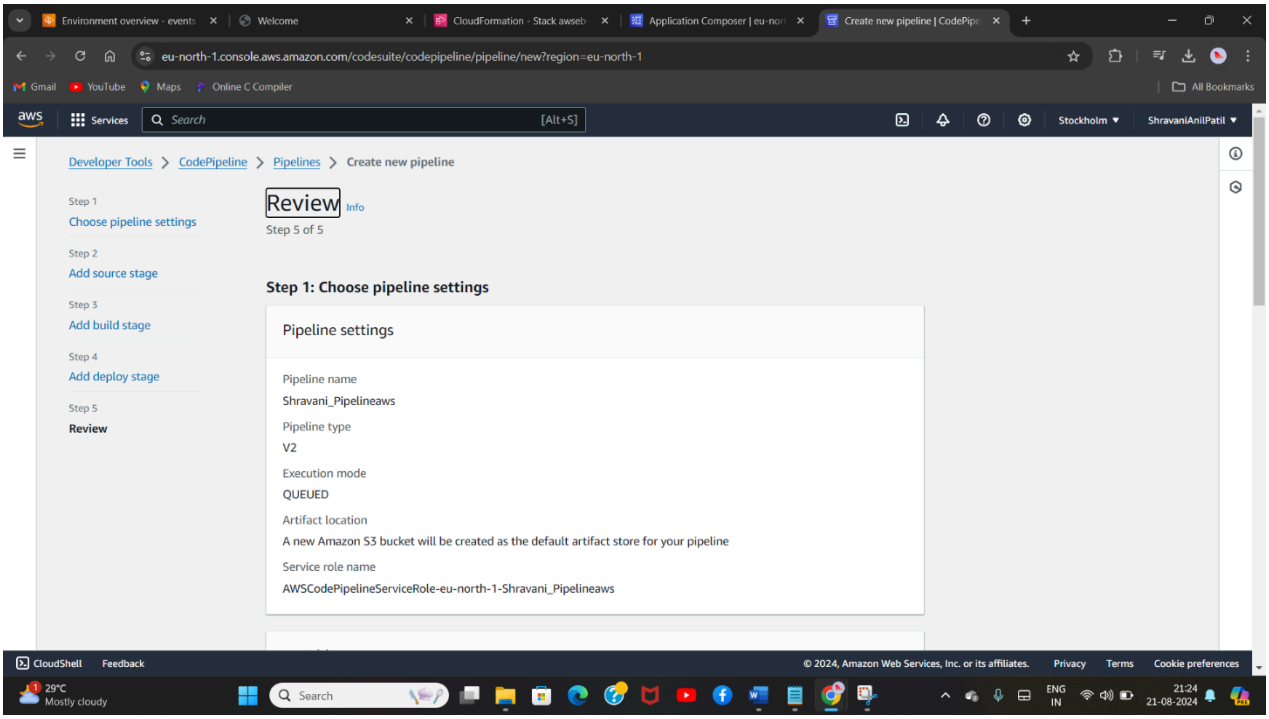
Privacy
Terms
Cookie preferences
29°C
Mostly cloudy
Search
ENG
IN
21:20
21-08-2024


eu-north-1.console.aws.amazon.com/codesuite/codepipeline/pipeline/new?region=eu-north-1
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
Shravani_Pipelineaws
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-Shravani_Pipelineaws
CloudShell
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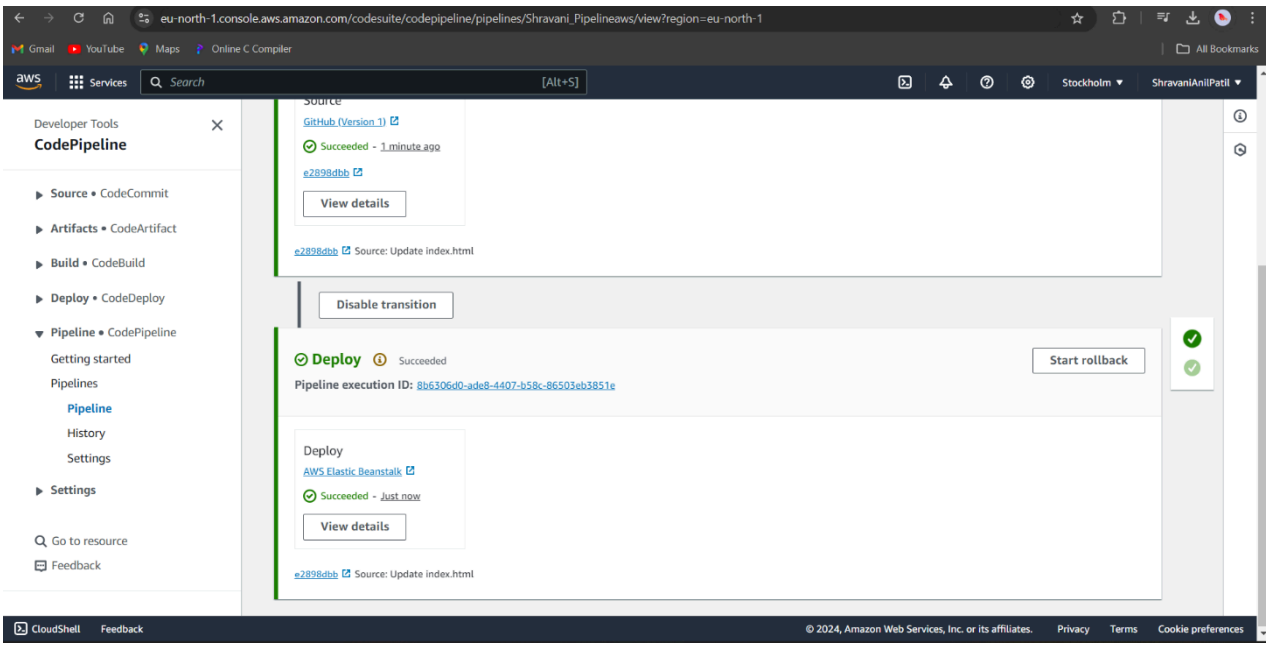
eu-north-1.console.aws.amazon.com/codesuite/codepipeline/pipelines/Shravani_Pipelineaws/view?region=eu-north-1
Developer Tools
CodePipeline
Source • CodeCommit
Artifacts • CodeArtifact
Build • CodeBuild
Deploy • CodeDeploy
Pipeline • CodePipeline
Getting started
Pipelines
Pipeline
History
Settings
Settings
Go to resource
Feedback
GitHub (Version 1)
Succeeded - 1 minute ago
e2898dbb
View details
e2898dbb Source: Update index.html
Disable transition
Deploy Succeeded
Start rollback
Pipeline execution ID: 8b6306d0-ade8-4407-b58c-86503eb3851e
Deploy
AWS Elastic Beanstalk
Succeeded - Just now
View details
e2898dbb Source: Update index.html
CloudShell
Feedback
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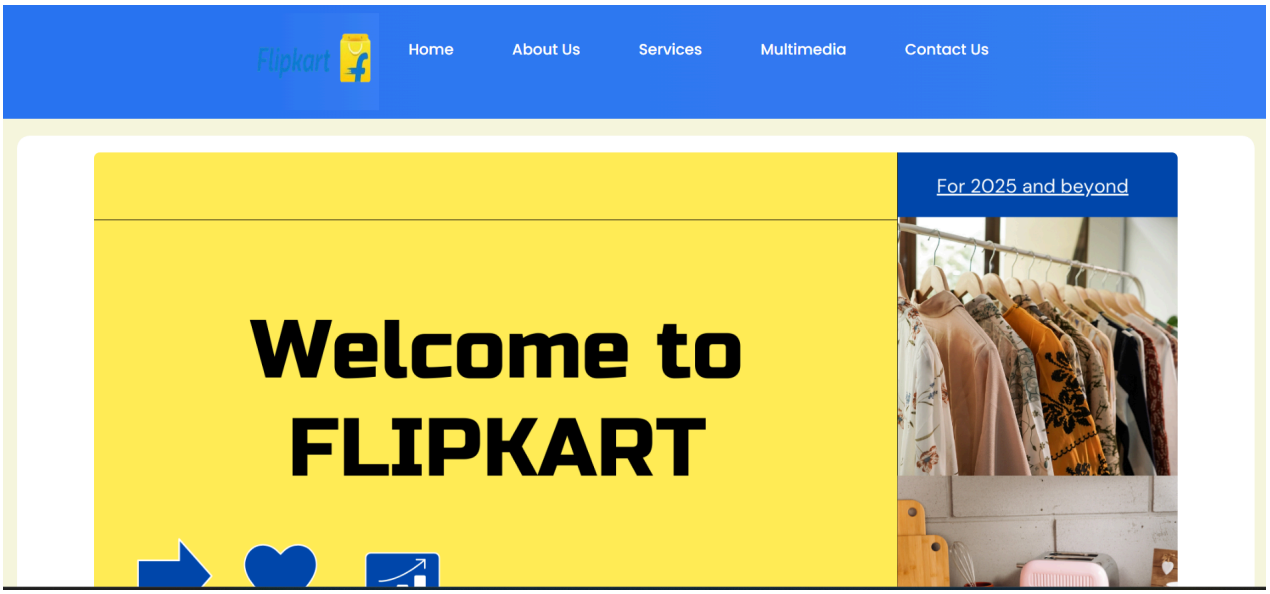
Flipkart
Home
About Us
Services
Multimedia
Contact Us
Welcome to
FLIPKART
For 2025 and beyond