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DIV:D15A - 24

ADVANCED DEV-OPS EXPERIMENT-02

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.

Theory:

AWS Elastic Beanstalk (Elastic Beanstalk)

AWS Elastic Beanstalk is a fully managed service that makes it easy to deploy, manage, and scale web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker. It abstracts the underlying infrastructure management (like servers, networking, and storage) so that developers can focus on writing code.

Key Features:

- Ease of Use: You can simply upload your code, and Elastic Beanstalk automatically handles deployment, from capacity provisioning, load balancing, and auto-scaling to application health monitoring.
- Platform Flexibility: Elastic Beanstalk supports a variety of application platforms, making it a versatile choice for different types of projects.
- Customization: While Elastic Beanstalk manages the infrastructure, you still have full control over the AWS resources that power your application.
- Environment Management: Elastic Beanstalk allows you to create and manage multiple environments, making it easier to test and deploy new versions of your application.
- Cost-Effectiveness: You pay only for the AWS resources needed to run your applications, and there is no additional charge for Elastic Beanstalk.
- Elastic Beanstalk is ideal for developers who want to focus on writing code rather than managing infrastructure. It is commonly used to quickly deploy web applications or RESTful APIs.

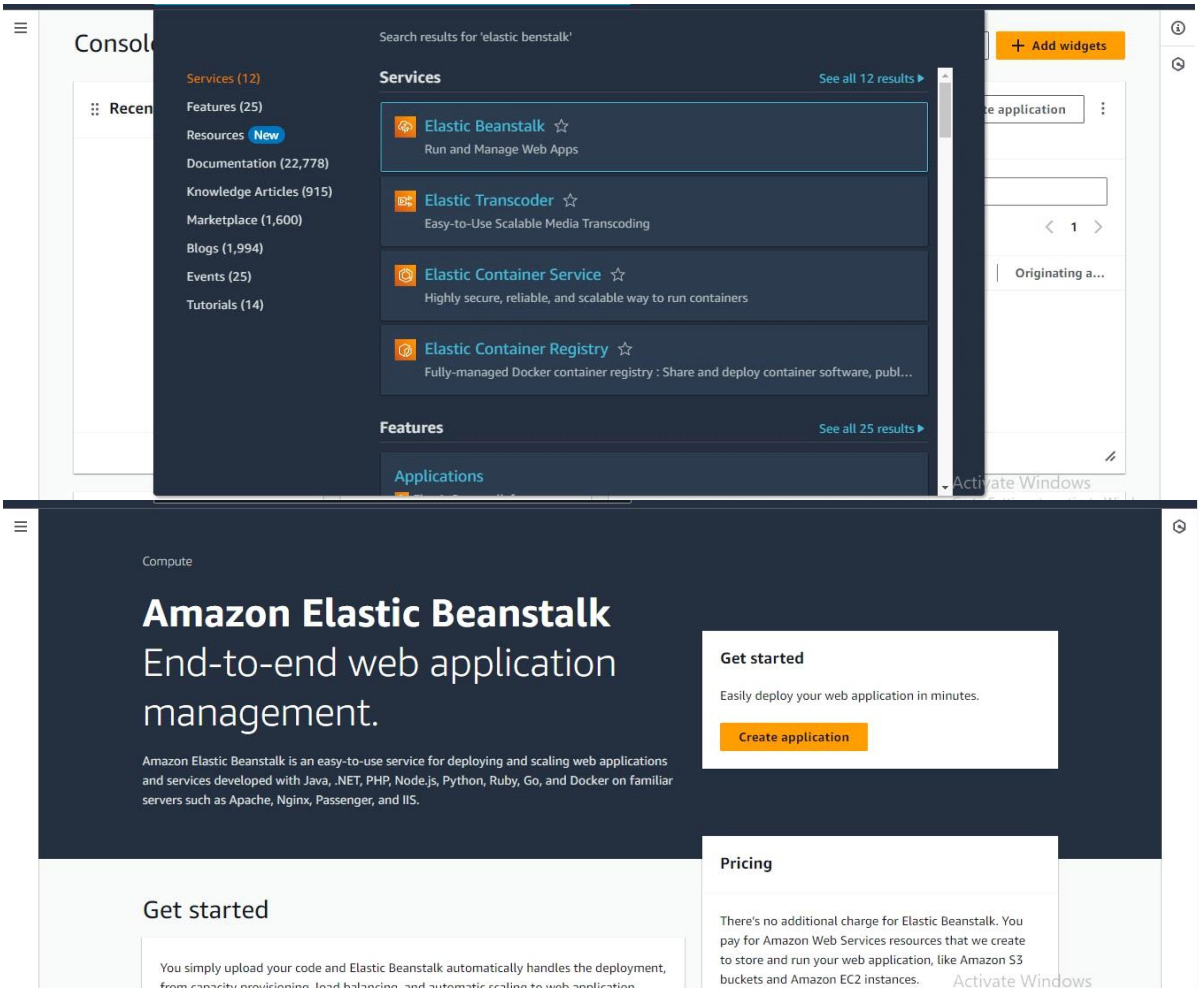
AWS CodePipeline

AWS CodePipeline is a fully managed continuous integration and continuous delivery (CI/CD) service that automates the build, test, and deployment phases of your release process. It enables you to model and automate the steps required to release your software.

Key Features:

- Continuous Integration and Delivery: CodePipeline automates the release process, enabling you to rapidly deliver updates and new features to your users.
- Integration with Other AWS Services: CodePipeline integrates seamlessly with other AWS services such as CodeBuild, CodeDeploy, Elastic Beanstalk, and S3, providing a powerful and cohesive toolset for CI/CD.

- Customizable Workflows: You can define your workflow and customize the steps for building, testing, and deploying your application.
- Third-Party Integration: CodePipeline can integrate with third-party tools such as GitHub, Jenkins, and Bitbucket, allowing you to use existing tools and workflows.
- Parallel Execution: CodePipeline can execute multiple stages in parallel, which speeds up the deployment process.
- AWS CodePipeline is ideal for teams looking to implement CI/CD practices. It is used to automate the entire release process, ensuring that your application is tested and deployed consistently and reliably every time there is a change in the code.



Implementation:

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.
- ( ) Upload your code
  Upload a source bundle from your computer or copy one from Amazon S3.

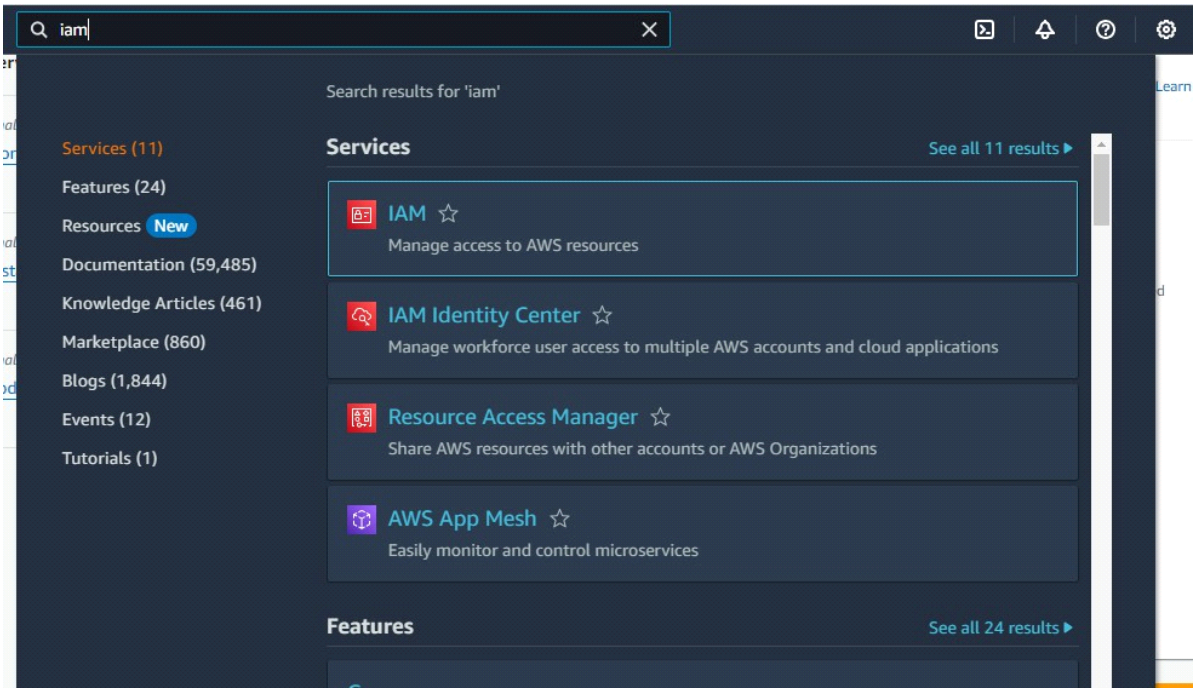
Presets Info

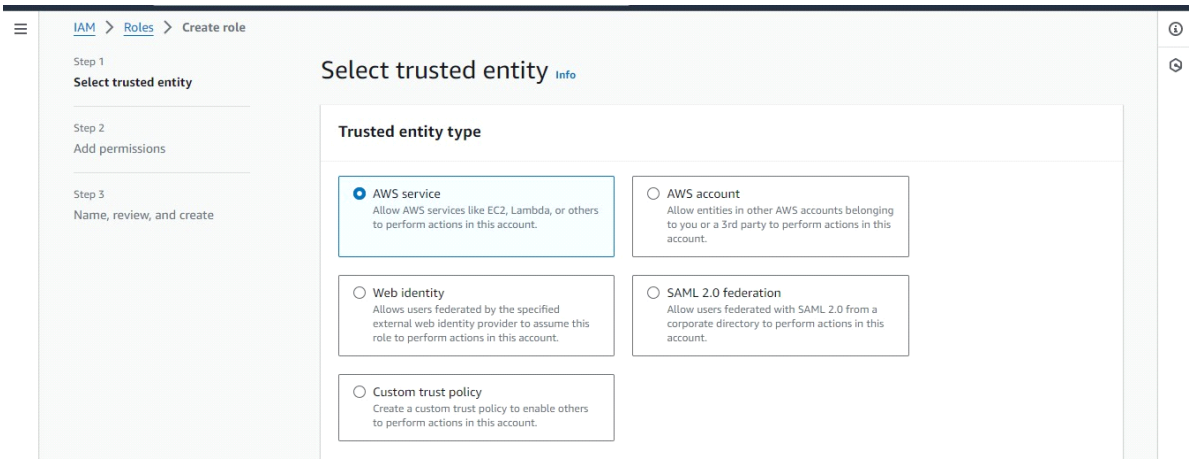
Start from a preset that matches your use case or choose custom configuration to unset recommended values and use the service's default values.

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


iam
Search results for 'iam'
Services (11)
Features (24)
Resources New
Documentation (59,485)
Knowledge Articles (461)
Marketplace (860)
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
AWS App Mesh
Easily monitor and control microservices
Features
See all 24 results


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.

Filter by Type

beanstalk | All types | 14 matches | 1

Policy name	Type	Description
AdministratorAccess-AWS...	AWS managed	Grants account administrative permissions. Explicitly allows developers and administrators t...
AWSElasticBeanstalkCust...	AWS managed	Provide the instance in your custom platform builder environment permission to launch EC...
AWSElasticBeanstalkEnha...	AWS managed	AWS Elastic Beanstalk Service policy for Health Monitoring system
AWSElasticBeanstalkMan...	AWS managed	This policy is for the AWS Elastic Beanstalk service role used to perform managed updates o...
AWSElasticBeanstalkMulti...	AWS managed	Provide the instances in your multicontainer Docker environment access to use the Amazon ...
AWSElasticBeanstalkRead...	AWS managed	Grants read-only permissions. Explicitly allows operators to gain direct access to retrieve inf...
AWSElasticBeanstalkRole...	AWS managed	AWSElasticBeanstalkRoleCore (Elastic Beanstalk operations role) Allows core operation of a ...
AWSElasticBeanstalkRole...	AWS managed	(Elastic Beanstalk operations role) Allows an environment to manage Amazon CloudWatch L...
AWSElasticBeanstalkRole...	AWS managed	(Elastic Beanstalk operations role) Allows a multicontainer Docker environment to manage ...
AWSElasticBeanstalkRole...	AWS managed	(Elastic Beanstalk operations role) Allows an environment to integrate an Amazon RDS insta...
AWSElasticBeanstalkRole...	AWS managed	(Elastic Beanstalk operations role) Allows an environment to enable Amazon SNS topic inte...
AWSElasticBeanstalkRole...	AWS managed	(Elastic Beanstalk operations role) Allows a worker environment tier to create an Amazon D...
AWSElasticBeanstalkWeb...	AWS managed	Provide the instances in your web server environment access to upload log files to Amazon S3.
AWSElasticBeanstalkWor...	AWS managed	Provide the instances in your worker environment access to upload log files to Amazon S3, t...

Name, review, and create

Role details

Role name
Enter a meaningful name to identify this role.

aws-elaticbeanstalk-role

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: _+=,. @-/\[{}]!#$%^*();:"'`

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.

EC2 key pair
Select an EC2 key pair to securely log in to your EC2 instances. Learn more

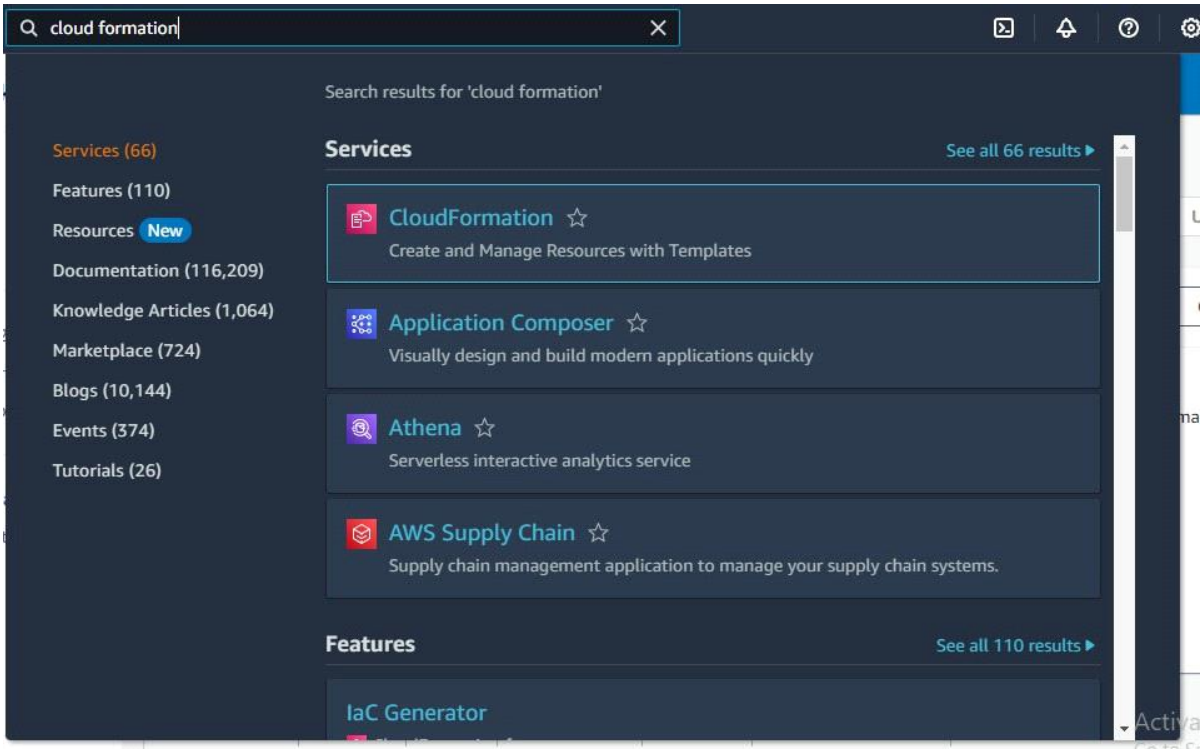
Choose a key pair

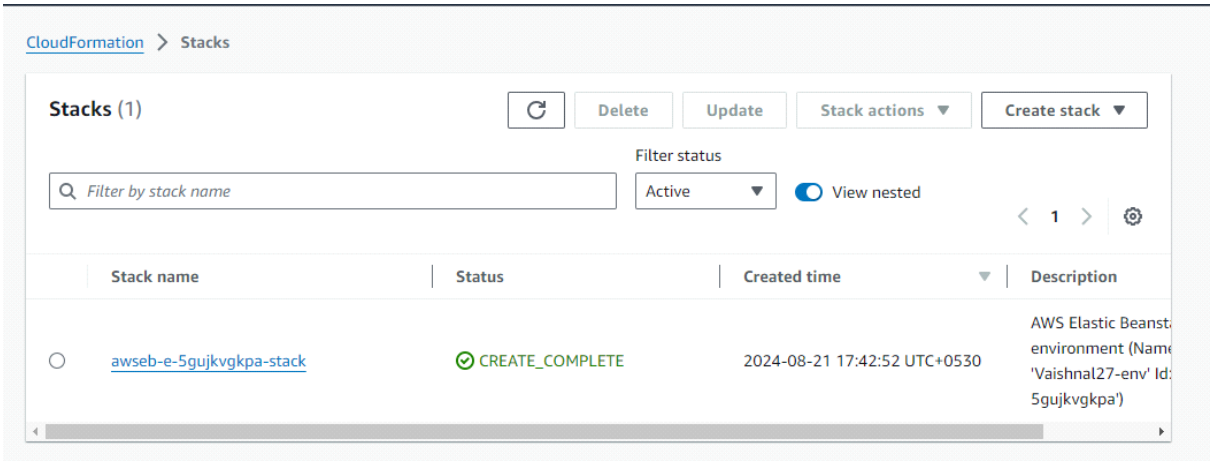
EC2 instance profile
Choose an IAM instance profile with managed policies that allow your EC2 instances to perform required operations.

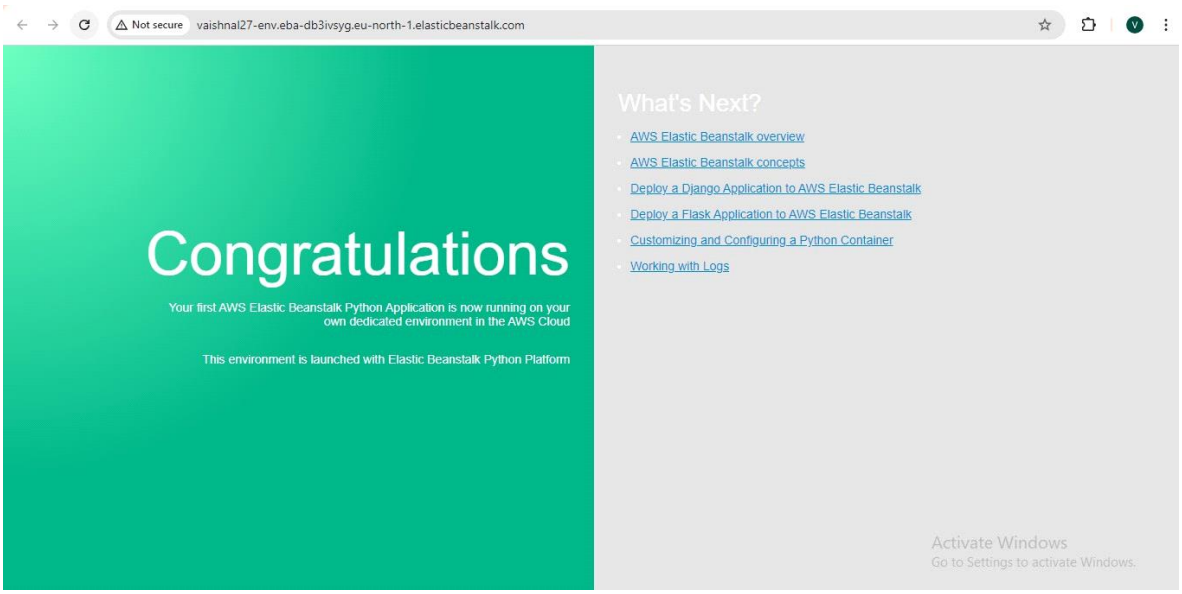
aws-elaticbeanstalk-role

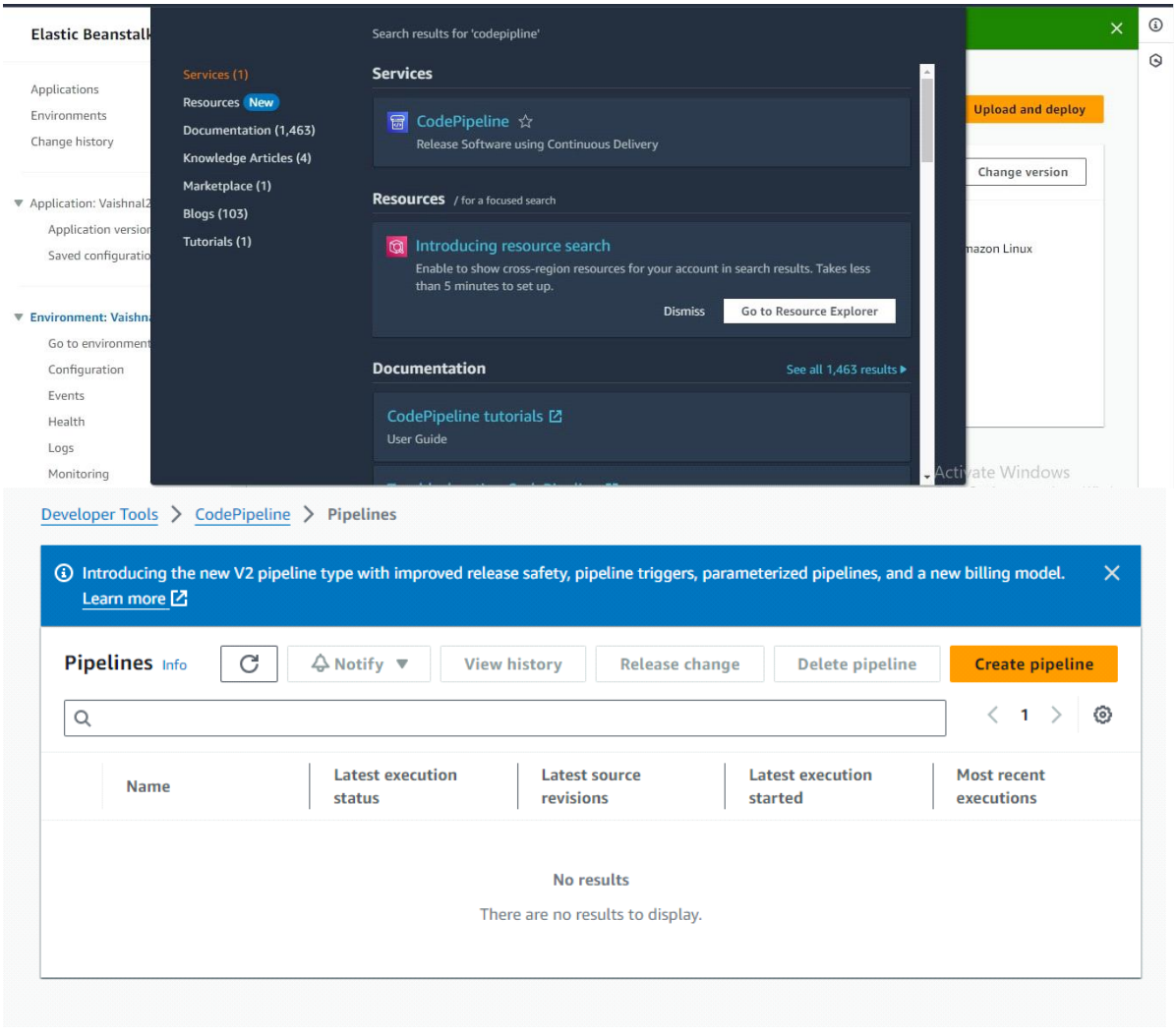
View permission details

Cancel | Skip to review | Previous | Next

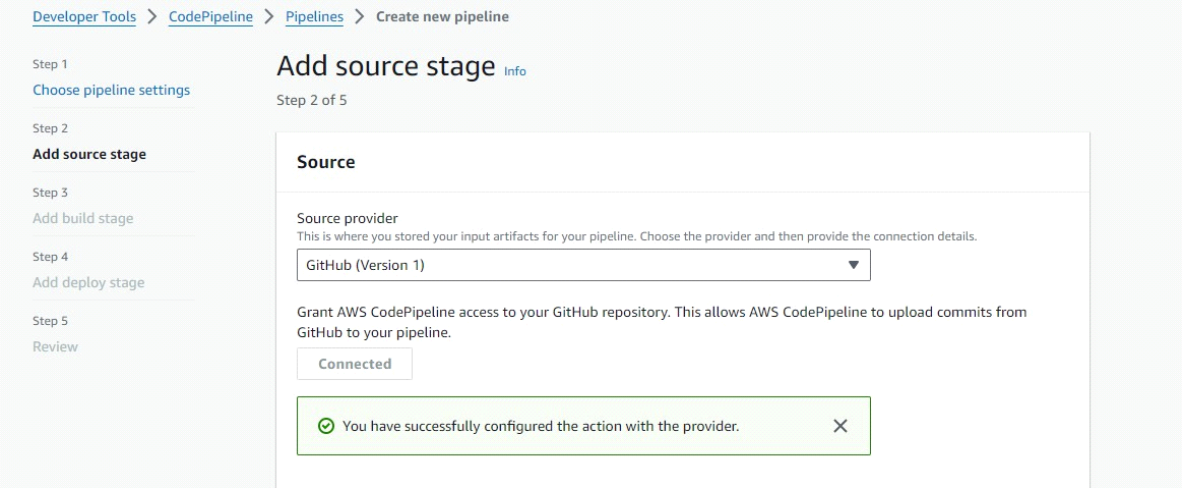

cloud formation
Search results for 'cloud formation'
Services (66)
Features (110)
Resources New
Documentation (116,209)
Knowledge Articles (1,064)
Marketplace (724)
Blogs (10,144)
Events (374)
Tutorials (26)
Services
See all 66 results
CloudFormation
Create and Manage Resources with Templates
Application Composer
Visually design and build modern applications quickly
Athena
Serverless interactive analytics service
AWS Supply Chain
Supply chain management application to manage your supply chain systems.
Features
See all 110 results
IaC Generator

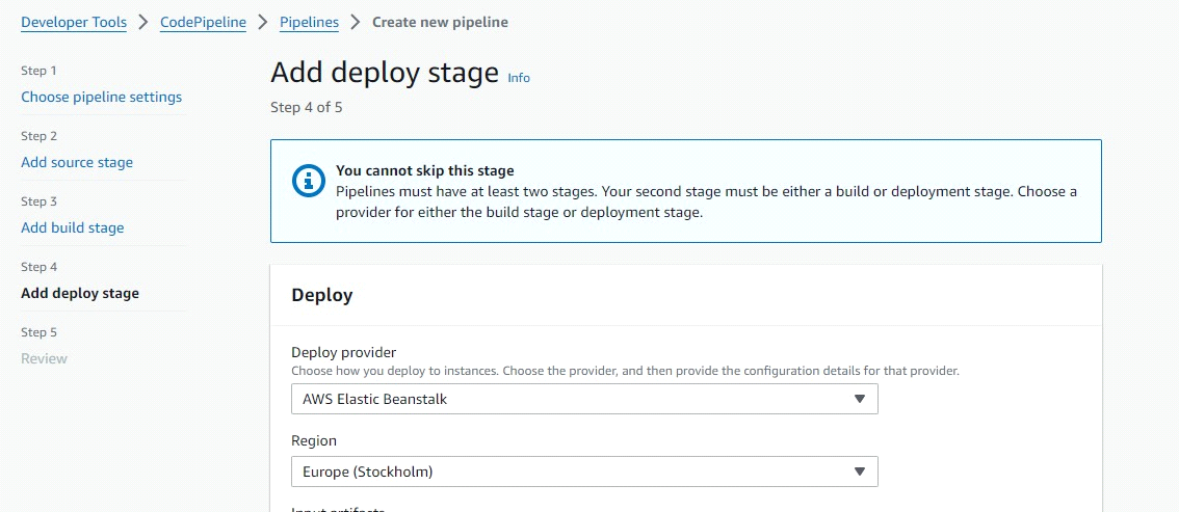

CloudFormation
Stacks
Stacks (1)
Delete
Update
Stack actions
Create stack
Filter status
Filter by stack name
Active
View nested
1
Stack name
Status
Created time
Description
awseb-e-5gujkvgkpa-stack
CREATE_COMPLETE
2024-08-21 17:42:52 UTC+0530
AWS Elastic Beanst
environment (Name
'Vaishnal27-env' Id:
5gujkvgkpa')

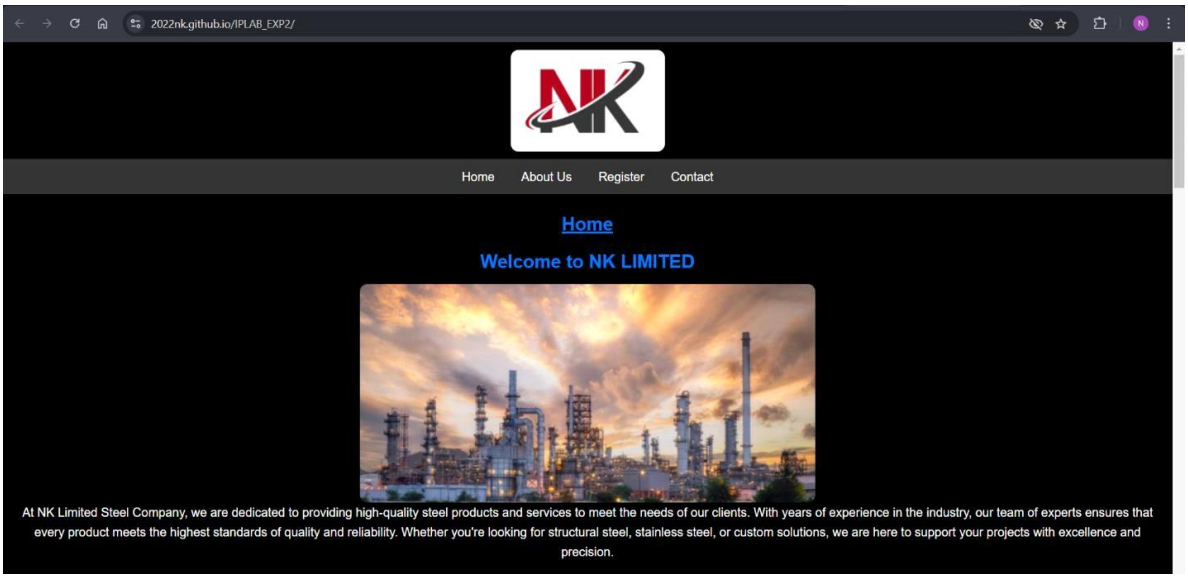




Code Deployment using Codepipeline


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.


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)


2022nk.github.io/IPLAB_EXP2/
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.