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Deploy a Web App with CodeDeploy

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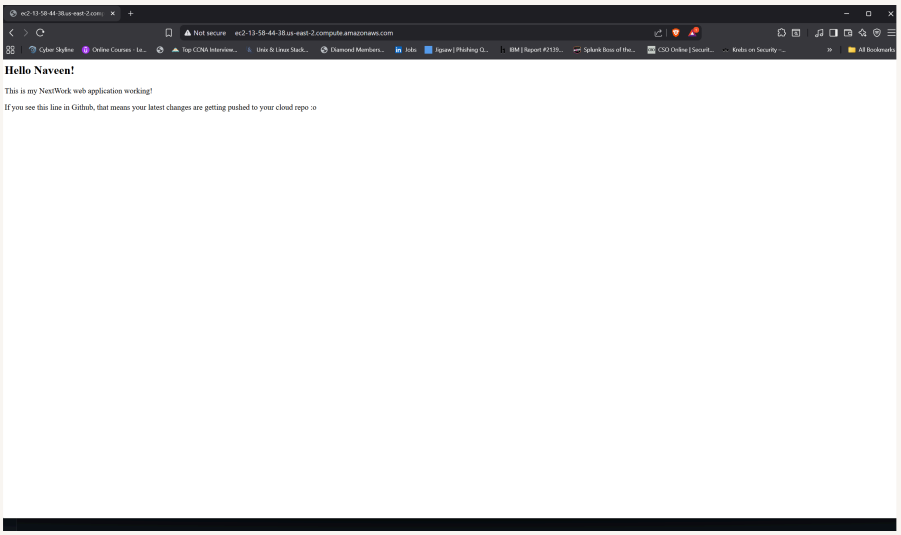


Introducing Today's Project!

In this project, I will demonstrate how to deploy the project using AWS Code deploy. 'm doing this project to learn the fucntion of CI/CD Pipeline in development.

Key tools and concepts

Services I used were Code deployment and code build. Key concepts I learnt include Deploying the code, creating instances using cloud formations to access the webserver and wrote scripts as part of this project.

Project reflection

This project took me approximately 2 hrs. The most challenging part was dealing with the errors and troubleshooting. It was most rewarding to see the website live after troubleshooting the errors I encountered.

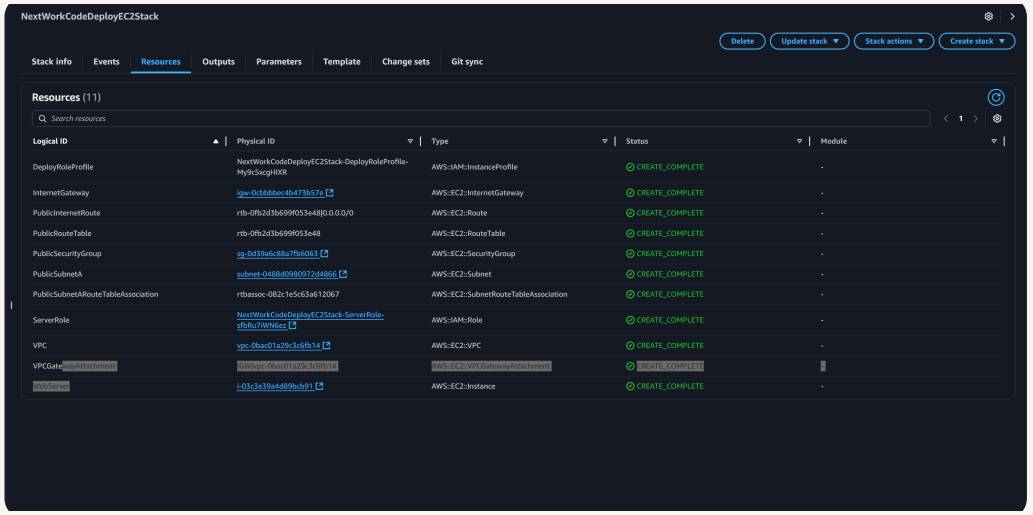
This project is part five of a series of DevOps projects where I'm building a CI/CD pipeline! I'll be working on the next project on creating a CI/CD pipeline.

Deployment Environment

Because it serves as the target server where the application will be deployed and tested, and VPC because every EC2 must run inside a secure, isolated network that controls connectivity and access.

Instead of launching these resources manually, I used AWS CloudFormation.

Other resources created in this template include VPC, Subnet, Route Tables, Internet Gateway, Security group and EC2 instance.



Deployment Scripts

Scripts are Scripts are like mini-programs that automate tasks. To set up CodeDeploy, I also wrote scripts to automate deployment tasks.

The 'install_dependencies will set up all the software needed to run our website by installing programs (called Tomcat and Apache) that handle internet traffic and host our application.

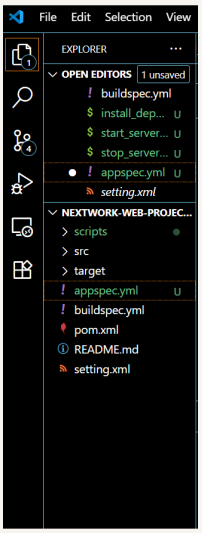
The start_server.sh will start both Tomcat (our Java application server) and Apache (web server) and make sure they'll restart automatically if the EC2 instance ever reboots.

The stop_server.sh will stop web server services by first checking if they're running. It uses pgrep to check for running processes of Apache (httpd) and Tomcat, and only attempts to stop the services if they are actually active.

appspec.yml

Then, I wrote an appspec.yml file it's like instruction manual for code deploy. The key sections in appspec.yml are hooks,file and os version.

I also updated buildspec.yml because CodeDeploy will need it to properly deploy the application. Without them, CodeDeploy wouldn't know what to do with our compiled code!

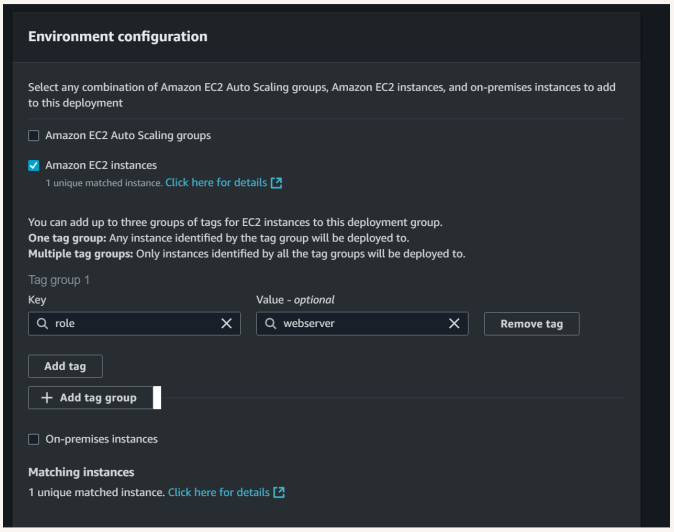


Setting Up CodeDeploy

A deployment group is a collection of EC2 instances that are grouped to deploy something together. A CodeDeploy application saves the time it'd take to manually deploy the same app to each instance in each environment.

To set up a deployment group, I also need to create an IAM role to grant access to the resources in the aws.

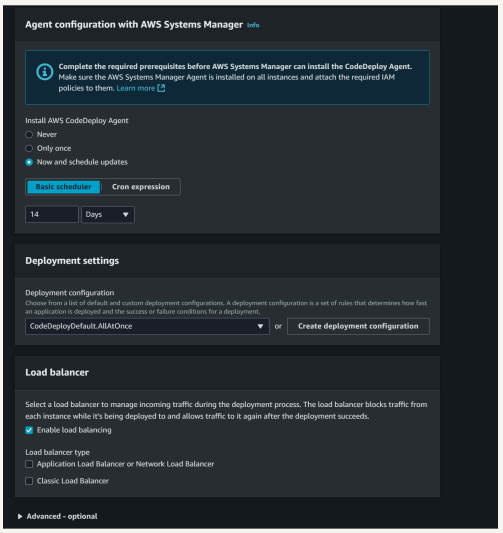
Tags are helpful so that CodeDeploy can identify the target EC2 instances for deployment. I used the tag to role: webserver. CodeDeploy will use this tag to find and deploy to the correct instance.


Environment configuration
Select any combination of Amazon EC2 Auto Scaling groups, Amazon EC2 instances, and on-premises instances to add to this deployment
Amazon EC2 Auto Scaling groups
Amazon EC2 instances
1 unique matched instance. Click here for details
You can add up to three groups of tags for EC2 instances to this deployment group.
One tag group: Any instance identified by the tag group will be deployed to.
Multiple tag groups: Only instances identified by all the tag groups will be deployed to.
Tag group 1
Key
Value - optional
role
webserver
Remove tag
Add tag
Add tag group
On-premises instances
Matching instances
1 unique matched instance. Click here for details

Deployment configurations

Another key settings is the deployment configuration, which affects the deployment. I used CodeDeployDefault.AllAtOnce, because I have one instance and I'm learning - speed is more important than caution here!

In order to connect EC2 Instance. CodeDeploy Agent is also set up. CodeDeploy Agent is a software that lets your EC2 instance communicate with CodeDeploy.

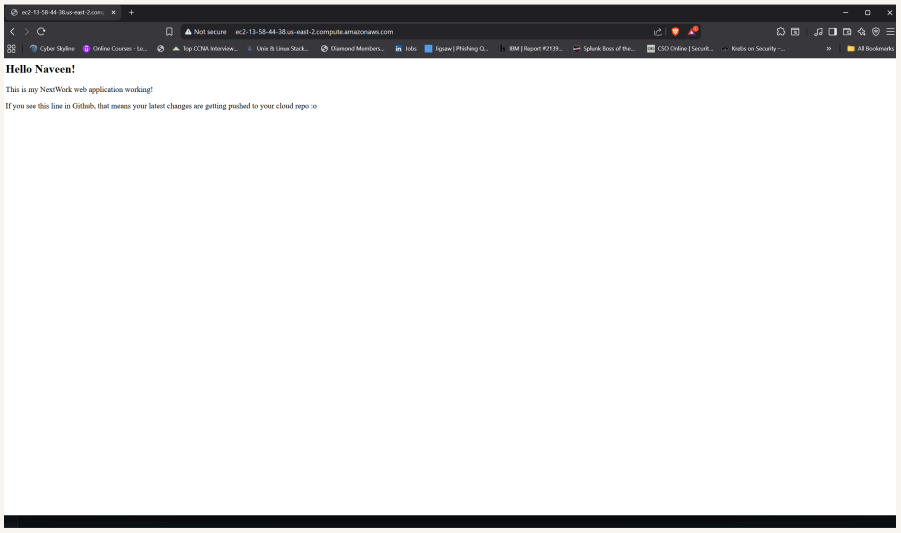


Success!

A CodeDeploy deployment is a single update to the application, with its own unique ID and history The difference to a deployment group is it keeps track of all the success and failures.

I had to configure a revision location, which is the place where CodeDeploy looks to find my application's build artifacts.My revision location was my S3 bucket.

To check that the deployment was a success, I visited the public IPv4 DNS. I saw the site was not working because by default, browsers take https. I changed it took http boom!!!! it worked.



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