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Deploy an App with CodeDeploy

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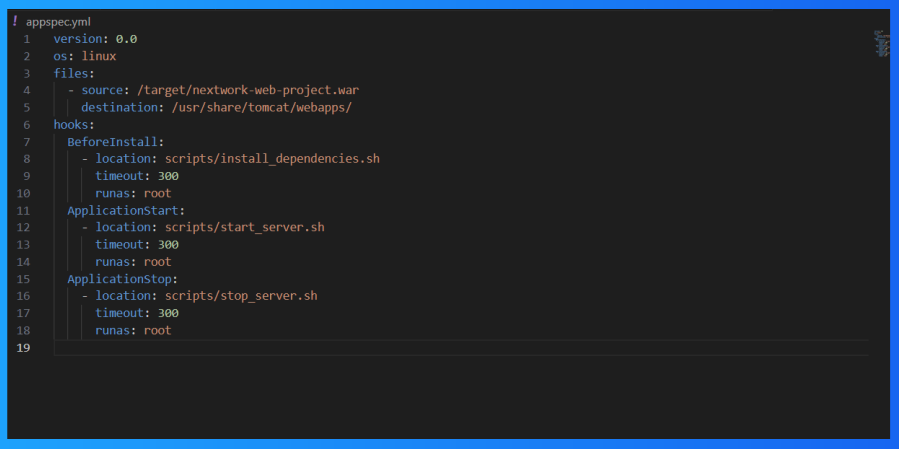

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Introducing today's project!

What is AWS CodeDeploy?

AWS CodeDeploy is a managed service that automates application deployments across various compute platforms. It's useful for ensuring consistent, error-free deployments, minimizing downtime, and enabling easy rollback to previous versions.

How I'm using AWS CodeDeploy in this project

In today's project, I used AWS CodeDeploy to automate the deployment of my web app to an EC2 instance. I created a deployment group, set up an IAM role, configured a revision location, and ran deployment scripts to install dependencies, start, and st

One thing I didn't expect...

One thing I didn't expect in this project was the complexity of managing the dependencies between Apache HTTPD and Tomcat. Coordinating them to work seamlessly together required careful configuration and testing, ensuring smooth operation of the app.

This project took me...

This project took me approximately 2 hours. It involved setting up the scripts, configuring AWS services, and ensuring everything was properly linked and deployed. Testing and troubleshooting along the way also contributed to the total time spent.

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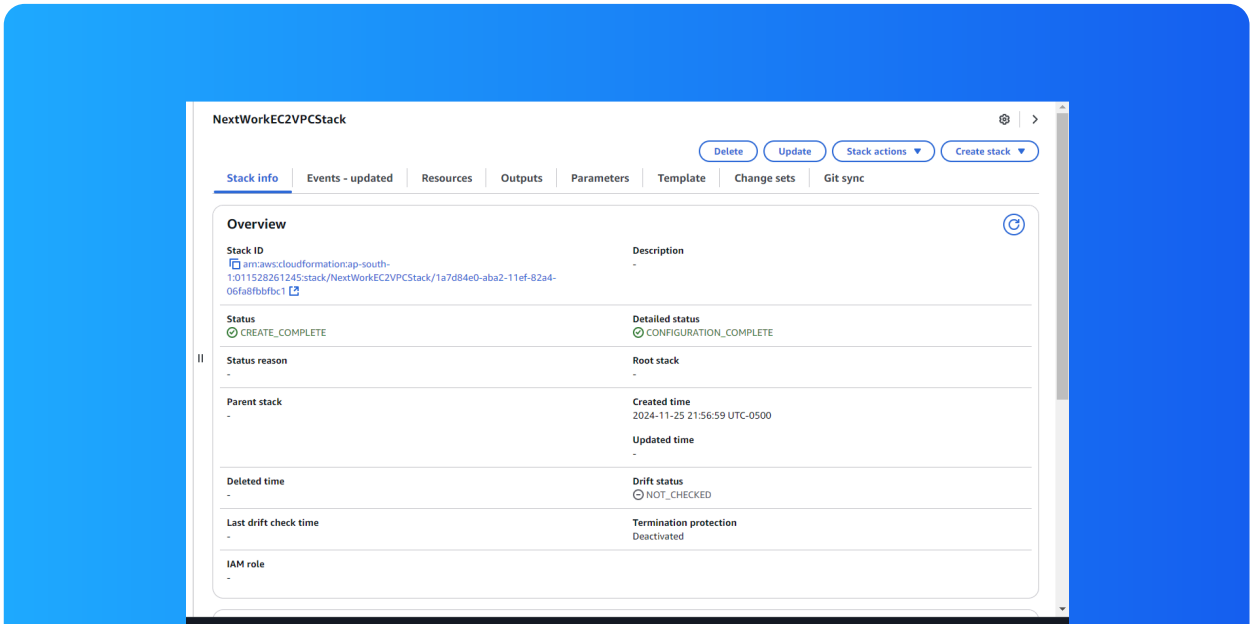
Set up an EC2 instance

I set up an EC2 instance and VPC because the EC2 instance will host my web application in a production environment, while the VPC ensures proper network configuration, security, and accessibility to the internet for users to access the app.

We manage production and development environments separately because production hosts the live, user-facing application, ensuring stability. Development is for testing and building features, preventing any issues from affecting the production env.

To set up my EC2 instance and VPC, I used AWS CloudFormation. It allowed me to automate the provisioning of both resources by uploading a template, ensuring consistency and efficiency in setting up my infrastructure.



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Bash scripts

Scripts are collections of commands written in a programming language like Bash, which automate tasks on a computer. Bash (Bourne Again Shell) is a command-line interface that allows users to write and execute scripts to manage and configure systems.

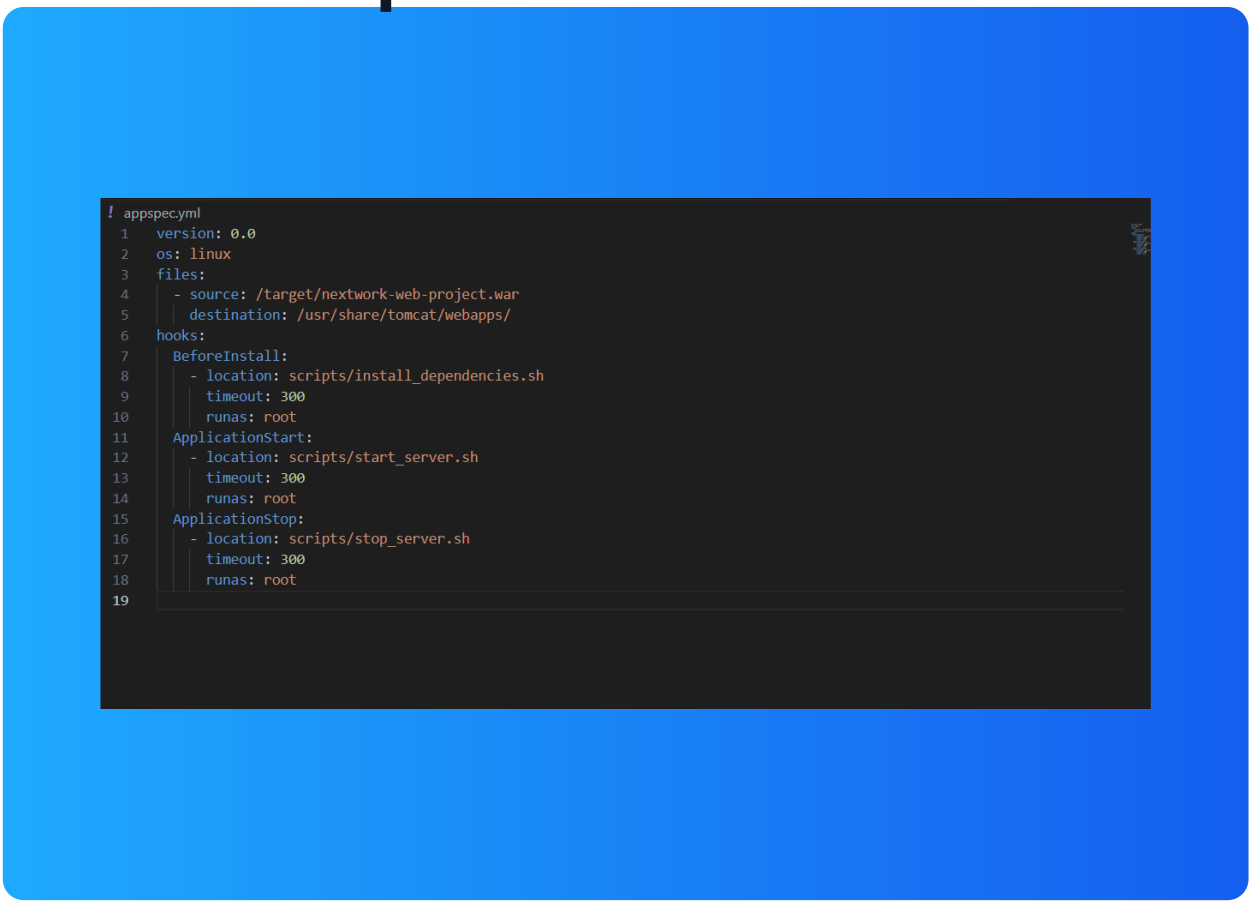
I used three scripts for my project's deployment

The first script I created was **install_dependencies.sh**. It installs Apache Tomcat and HTTPD, configures Apache to forward requests to Tomcat, and sets up the environment for running the web application on the EC2 instance.

The second script I created was **start_server.sh**. It starts the Tomcat and HTTPD services on the EC2 instance and ensures they automatically start upon system reboot, ensuring the web app is up and running whenever the server is restarted.

The third script I created was stop_server.sh. It checks if the Tomcat and HTTPD services are running, and if so, stops them. This ensures that old instances of the services are terminated before deploying the new version of the application.

Bash scripts



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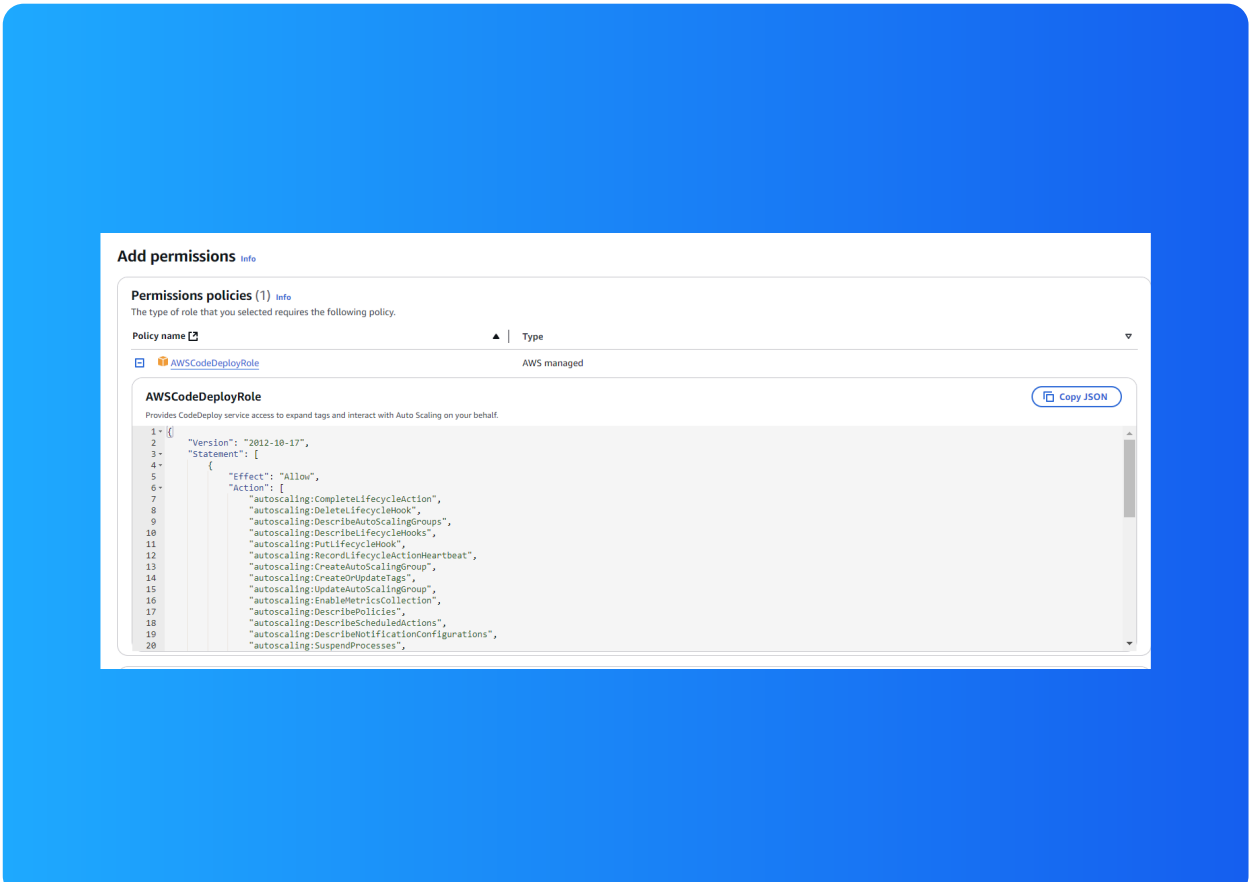
CodeDeploy’s IAM Role

I created an IAM service role for CodeDeploy because it provides the necessary permissions to manage EC2 instances and deploy applications. The role ensures CodeDeploy can access required resources, automate deployments, and manage the app setup.

To set up CodeDeploy’s IAM role, I created a custom policy with permissions for EC2 instance management, application deployment, and AWS services interaction. I then attached this policy to the IAM role that CodeDeploy uses to execute deployment task



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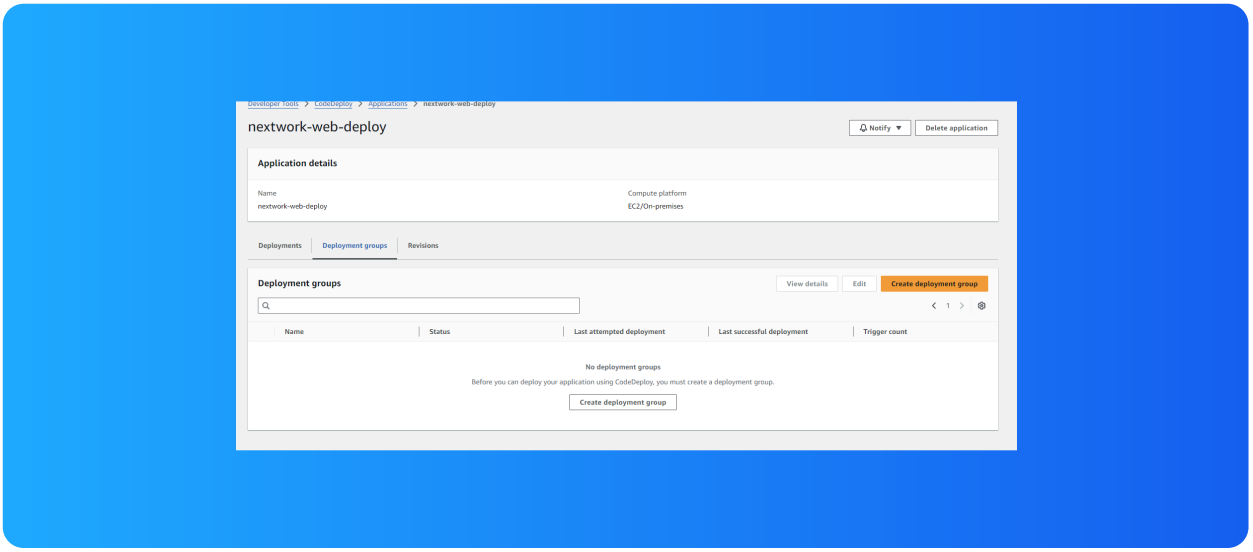
CodeDeploy application

A CodeDeploy application means a logical entity within AWS that represents the deployment of code to target instances. It defines the source and the deployment process, enabling automated, consistent, and scalable deployments across environments

To create a CodeDeploy application, I had to select a compute platform, which means choosing where the application will be deployed. This could be EC2 instances, on-premises servers, or AWS Lambda functions, allowing for flexible deployment options.

The compute platform I chose was EC2 instances because they provide scalable, reliable computing resources for running web applications, and they integrate seamlessly with CodeDeploy for automated deployment and management of the application.



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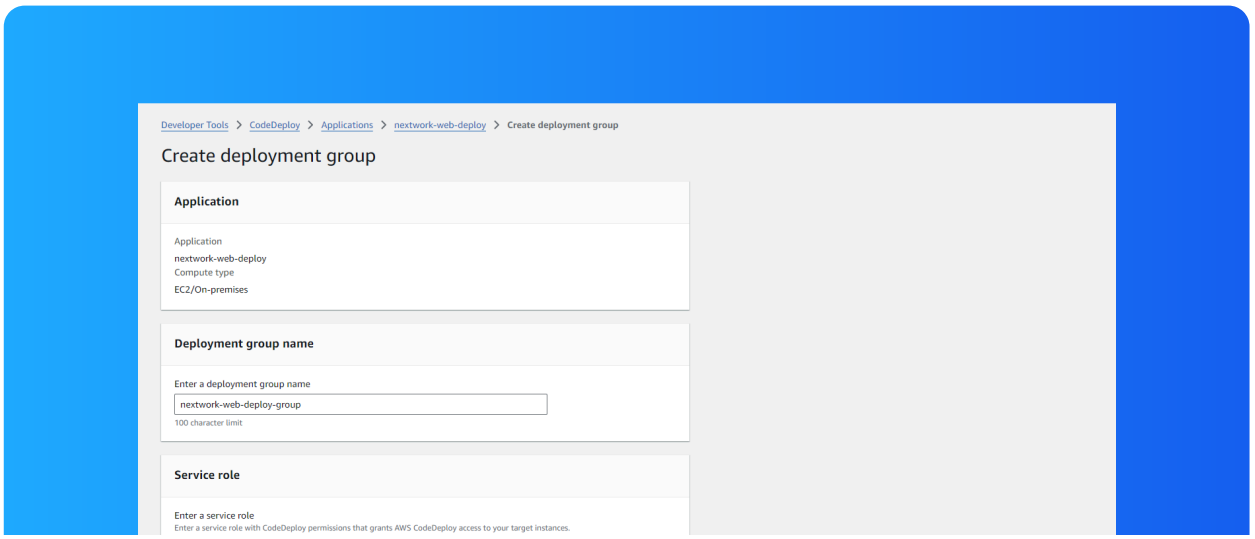
Deployment group

A deployment group means a collection of EC2 instances or Lambda functions that CodeDeploy targets for application deployment, ensuring consistency and easy management across environments.

Two key configurations for a deployment group

Environment means the infrastructure settings for deploying your application, like instance type and region, ensuring proper deployment execution across different environments (e.g., development, production). It configures where and how the app runs.

A CodeDeploy Agent is software installed on EC2 instances that facilitates communication with CodeDeploy. It ensures deployment tasks are executed, such as downloading and installing the new application version, on the target instance.



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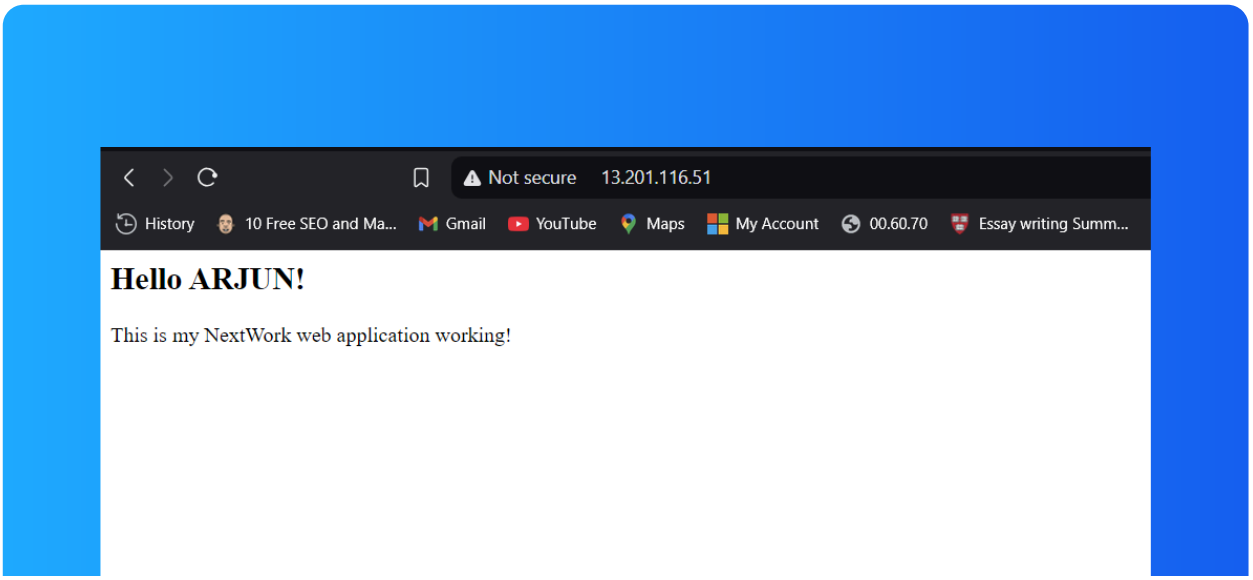
CodeDeploy application

To create my deployment, I had to set up a revision location, which means specifying where my application code resides. This could be an S3 bucket or GitHub repository, allowing CodeDeploy to fetch the code and deploy it to the target instances.

My revision location was my S3 bucket URI, where I stored the application code. This allowed CodeDeploy to access the code and deploy it to the EC2 instance as part of the deployment process, ensuring the latest version was deployed.

To visit my web app, I had to visit the EC2 instance's public IP or domain name, which was configured to route traffic to the web app. This link allowed me to access the deployed application served by Apache and Tomcat on the EC2 instance.



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