Deploy an App with CodeDeploy

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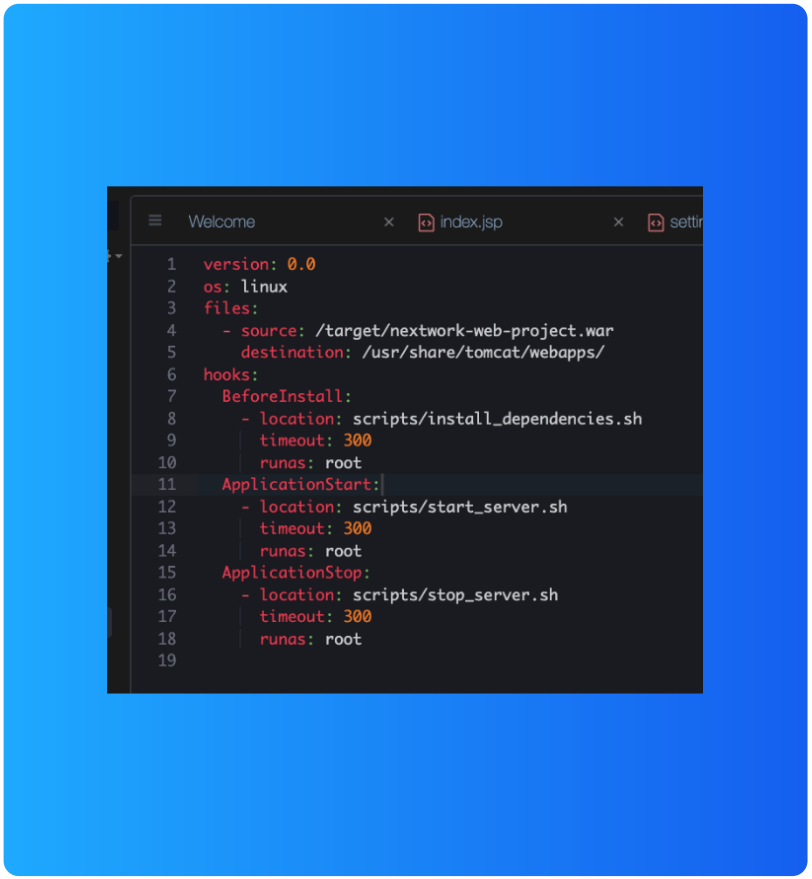

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Introducing today's project!

What is AWS CodeDeploy?

A fully managed deployment service that automates software deployments to a variety of compute services such as EC2. CodeDeploy protects your application from downtime during deployments through rolling updates and deployment health tracking.

How I'm using AWS CodeDeploy in this project

I used AWS CodeDeploy to automate the deployment of my web application to an EC2 instance, managing the entire process from code revision to deployment, ensuring efficient and reliable updates.

One thing I didn't expect...

One thing I didnâ€t expect was how essential it is to carefully configure IAM roles and policies for AWS CodeDeploy. As a junior with limited Maven and CI/CD knowledge, I was surprised by the detailed attention required .

This project took me...

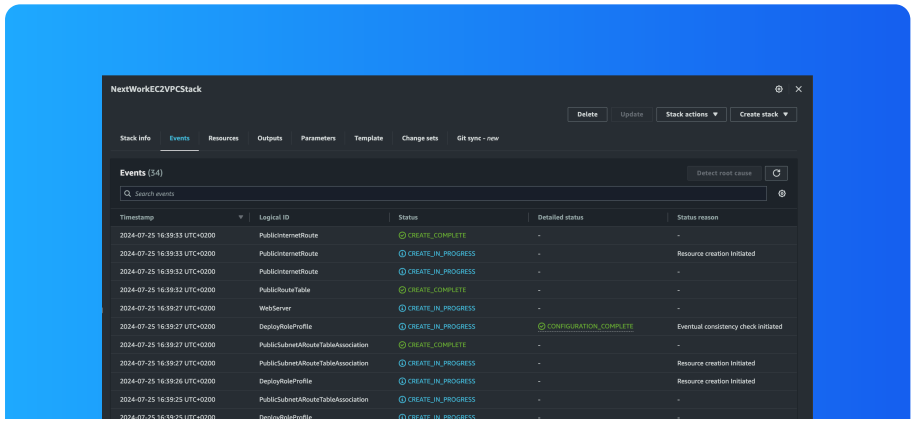
A long time because I tried at least 3 times to run the setup correctly, troubleshooting each issue along the way. Each attempt helped me understand the process better, but it took patience and persistence to get it right.

Set up an EC2 instance

I set up an EC2 instance and VPC because I need a dedicated environment to host my web application and control access to it. This setup provides enhanced security, customizable networking infrastructure, and isolated environments tailored to my app'.

We manage production and development environments separately because having separate environments is important. This allows us to experiment, test, and develop new features without affecting the live application while enabling CI/CD.

To set up my EC2 instance and VPC, I used AWS CloudFormation. This AWS service allows me to define and provision the infrastructure as code, ensuring a consistent and to automate repeatable deployment process with minimal manual intervention.



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Bash scripts

Scripts are programs written to automate tasks. Bash is a Unix shell and command language used for scripting (Linux, macOS). It allows users to write commands in a file to be executed sequentially, making automation and task management more efficient

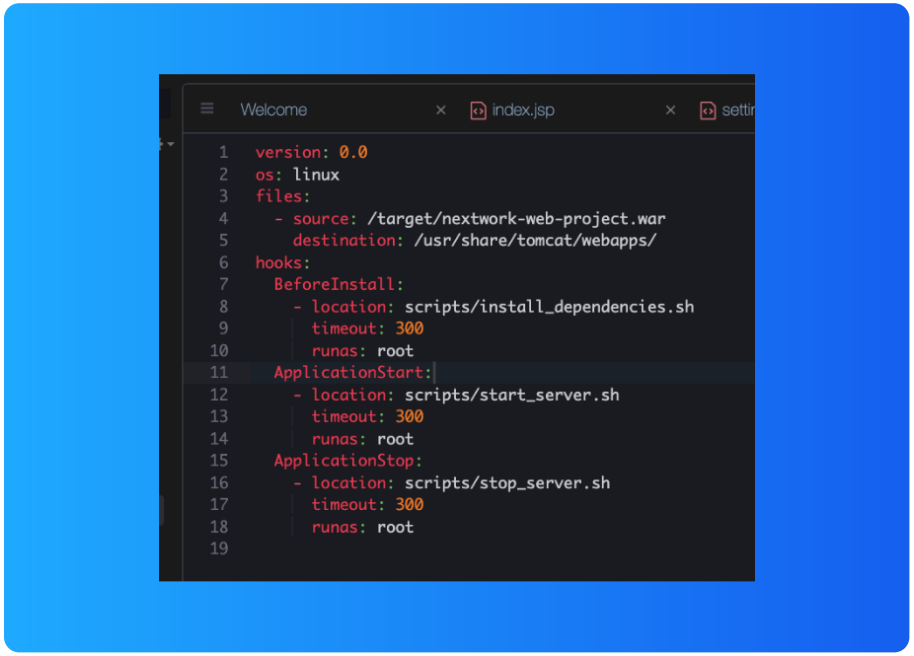
I used three scripts for my project's deployment

The first script I created was install_dependencies.sh, designed to automate the installation of essential software, including Apache Tomcat and HTTPD, on the EC2 instance, ensuring a consistent environment for the web application.

The second script I created was start_server.sh, designed to initiate the web servers. It starts both Apache Tomcat and HTTPD services, ensuring the application is accessible and operational after deployment.

The third script I created was stop_server.sh, designed to shut down the web servers gracefully. It stops Apache Tomcat and HTTPD services (to avoid interfering with the new deployment), ensuring a clean shutdown before updates or maintenance.

Bash scripts



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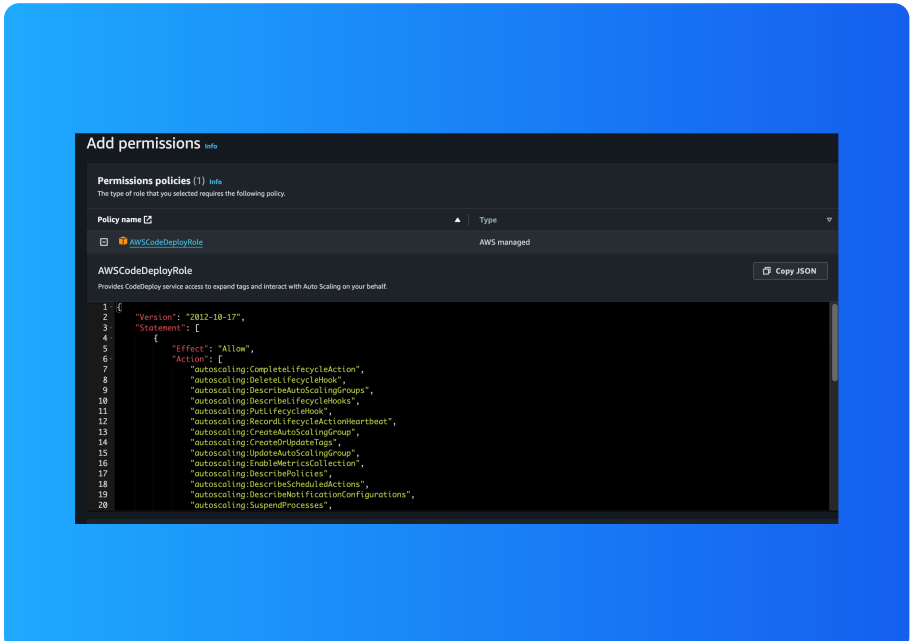
CodeDeploy’s IAM Role

I created an IAM service role for CodeDeploy because it needed permissions to interact with EC2 instances, access resources like S3 buckets, and perform deployments. This role ensures CodeDeploy can deploy updates securely and efficiently.

To set up CodeDeployâ€s IAM role, I used the AWS Management Console to create a new role, select the CodeDeploy service, and attach the pre-configured AWSCodeDeployRole policy for streamlined permission management.

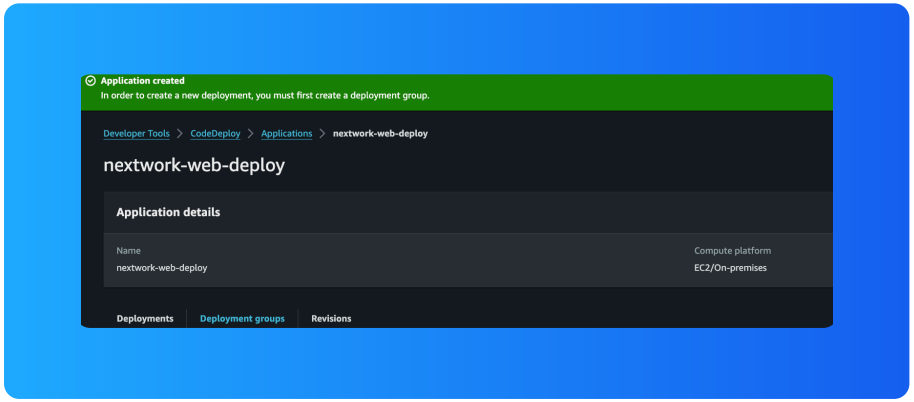


CodeDeploy application

A CodeDeploy application means a container within CodeDeploy that defines deployment configurations, allowing you to manage application revisions, deployment groups, and processes for efficient and controlled updates.

To create a CodeDeploy application, I had to select a compute platform, which means defining the environment where my application will be deployed, such as EC2 instances, AWS Lambda, or Amazon ECS, allowing CodeDeploy to optimize deployment processes

The compute platform I chose was EC2/On-premises because it offers flexibility for deploying applications on both virtual and physical servers, which can correspond to various infrastructure needs and preferences.



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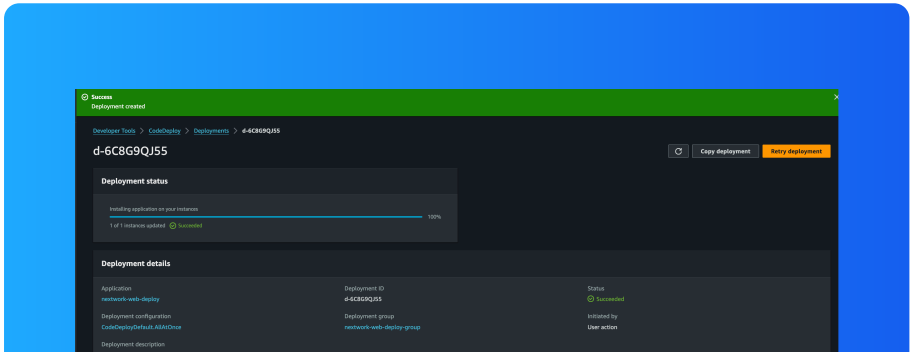
Deployment group

A deployment group means specifying the targets, strategies, and settings for deploying an application. It ensures controlled and efficient updates by defining where and how to deploy, allowing for precise management of different strategies.

Two key configurations for a deployment group

Environment means defining the type of resources CodeDeploy uses for deployments. It specifies the servers or instances (like EC2) that will run your application, setting up how CodeDeploy interacts with these resources to ensure proper deployment.

A CodeDeploy Agent is a software component installed on EC2 instances that enables communication with the CodeDeploy service, enabling it to execute deployment actions based on the provided AppSpec file and manage the deployment process effective



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CodeDeploy application

To create my deployment, I had to set up a revision location, which means specifying the exact location of the application code or package, such as an S3 bucket, for CodeDeploy to access and deploy to the target instances.

My revision location was my S3 URI, specifically the location of the WAR file within the S3 bucket, which pointed CodeDeploy where I stored the zip file containing the application's build artifacts.

To visit my web app, I had to use my public IP address instead of the EC2 instance's DNS. This is because the deployment didn't use a load balancer, so traffic needs to be directed specifically to my machine for testing.