Maven Setup and Build Automation on AWS

Version: Full Guide (EC2 + CodeBuild/CodePipeline + Spring Boot)

1. What is Maven?

Apache Maven is a powerful build automation and project management tool primarily used for Java-based applications. It helps manage dependencies, compile code, run tests, and package applications into deployable artifacts like JAR or WAR files.

Why Use Maven?

1. Automates project builds (compile → test → package).
2. Manages dependencies automatically from online repositories.
3. Ensures project consistency and portability.
4. Integrates easily with Jenkins, AWS CodeBuild, and CodePipeline.

2. Standard Maven Project Structure

MyApp/
■■■ src/main/java → Source code
■■■ src/test/java → Unit tests
■■■ target/ → Compiled outputs (JAR/WAR)
■■■ pom.xml → Main Maven configuration file

3. Example pom.xml for Spring Boot App

4.0.0 com.example springboot-demo 1.0.0 jar org.springframework.boot spring-boot-starter-web

4. Step-by-Step: Maven on AWS EC2

1. Launch an EC2 instance (Amazon Linux 2 or Ubuntu).
2. Install Java & Maven:
3. sudo yum install java-17-amazon-corretto -y
4. sudo yum install maven -y
5. Verify installation using: mvn -version
6. Clone your Spring Boot project and build it:
7. git clone https://github.com/your-repo/demo-app.git
8. cd demo-app && mvn clean package
9. Run the application: java -jar target/demo-1.0.0.jar

5. Automating Maven Build using AWS CodeBuild + CodePipeline

You can use AWS CodeBuild to automate Maven builds and CodePipeline for CI/CD deployment.

1. Go to AWS Console → CodeBuild → Create Project.

2. Choose Managed Image → Runtime: Amazon Linux 2 → Java Corretto 17.
3. Link your source repository (GitHub, CodeCommit, or S3).
4. Add a buildspec.yml file:

version: 0.2 phases: install: commands: - echo Installing Maven - mvn --version build: commands: - mvn clean package artifacts: files: - target/*.jar

1. Create a CodePipeline with three stages: Source → Build → Deploy.
2. Deploy the artifact to Elastic Beanstalk, EC2, or ECS automatically.

6. Common Maven Commands

1. mvn clean – Deletes previous build outputs.
2. mvn compile – Compiles source code.
3. mvn test – Runs test cases.
4. mvn package – Packages code into a JAR/WAR.
5. mvn install – Installs the artifact to local repo.
6. mvn spring-boot:run – Runs the Spring Boot app directly.

7. Summary

1. Maven automates the Java build process efficiently.
2. AWS EC2 allows manual Maven setup and deployment.
3. AWS CodeBuild + CodePipeline enables full CI/CD automation.
4. Spring Boot simplifies application packaging and deployment.