NextWork.org

Dependencies and CodeArtifact

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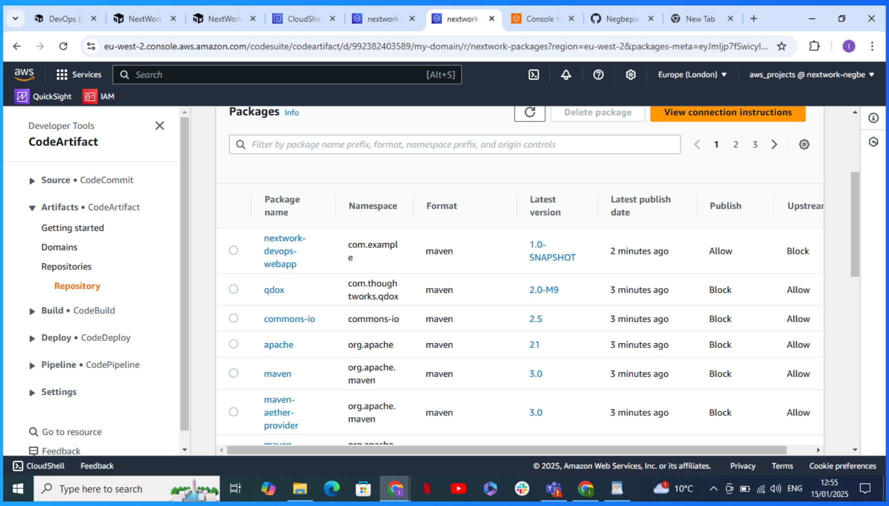
eu-west-2.console.aws.amazon.com/codesuite/codeartifact/d/992382403589/my-domain/r/nextwork-packages?region=eu-west-2&packages-meta=eyJmljp7fSwicyl...
Europe (London)
aws_projects @ nextwork-negbe
Developer Tools
CodeArtifact
Source • CodeCommit
Artifacts • CodeArtifact
Getting started
Domains
Repositories
Repository
Build • CodeBuild
Deploy • CodeDeploy
Pipeline • CodePipeline
Settings
Go to resource
Feedback
Packages Info
Delete package
View connection instructions
Filter by package name prefix, format, namespace prefix, and origin controls

Package name	Namespace	Format	Latest version	Latest publish date	Publish	Upstrear
nextwork-devops-webapp	com.example	maven	1.0-SNAPSHOT	2 minutes ago	Allow	Block
qdox	com.thoughtworks.qdox	maven	2.0-M9	3 minutes ago	Block	Allow
commons-io	commons-io	maven	2.5	3 minutes ago	Block	Allow
apache	org.apache	maven	21	3 minutes ago	Block	Allow
maven	org.apache.maven	maven	3.0	3 minutes ago	Block	Allow
maven-aether-provider	org.apache.maven	maven	3.0	3 minutes ago	Block	Allow

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Introducing today's project!

What is AWS CodeArtifact?

AWS CodeArtifact is a fully managed artifact repository service that securely stores, shares, and manages software packages used in development. It integrates with popular build tools, ensuring centralized management and secure access for teams

How I used CodeArtifact in this project

I used AWS CodeArtifact to securely store and manage my project's dependencies. It acted as a central repository for Maven packages, integrated with my build process, and ensured seamless access for compiling and deploying the NextWork DevOps WebApp

One thing I didn't expect in this project was...

One thing I didn't expect in this project was the level of troubleshooting involved. It was more complex than anticipated, but it pushed me to learn deeper about AWS services, debugging, and how to resolve real-world challenges effectively

This project took me...

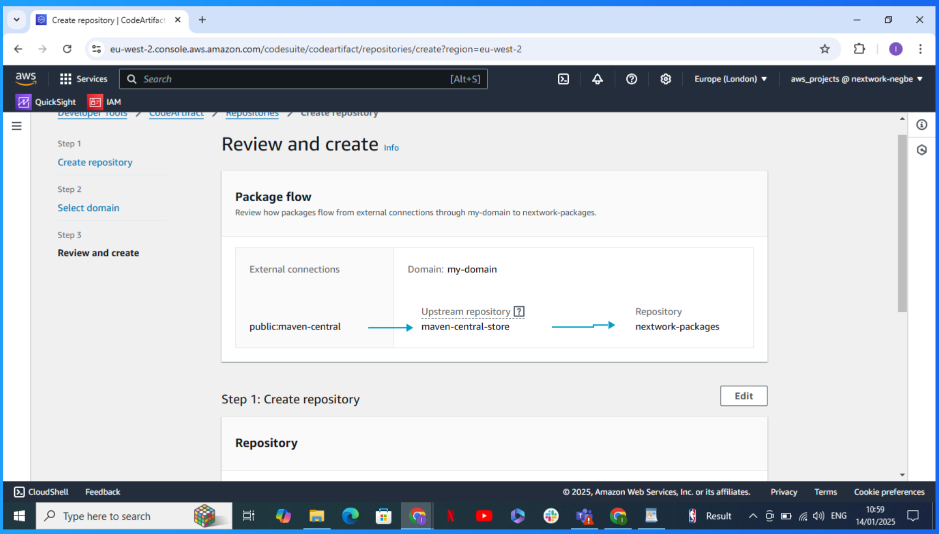
100 minutes

My project has three artifact repositories

The local repository is the repository in your working environment (e.g., EC2 instance or CloudShell) where all the software packages needed for your project are stored. It serves as a cache for dependencies to avoid fetching them repeatedly.

The upstream repository is a central repository like Maven Central or npm registry connected to your CodeArtifact domain. It provides external dependencies for your project if they are not available in your local repository

The public repository is a shared repository, such as Maven Central, that hosts publicly available packages and libraries. It allows developers to access and use open-source dependencies for their projects easily


eu-west-2.console.aws.amazon.com/codesuite/codeartifact/repositories/create?region=eu-west-2

Review and create

Step 1 Create repository
Step 2 Select domain
Step 3 Review and create

Package flow
Review how packages flow from external connections through my-domain to nextwork-packages.

External connections: public:maven-central → Domain: my-domain — Upstream repository: maven-central-store → Repository: nextwork-packages

Step 1: Create repository

Repository

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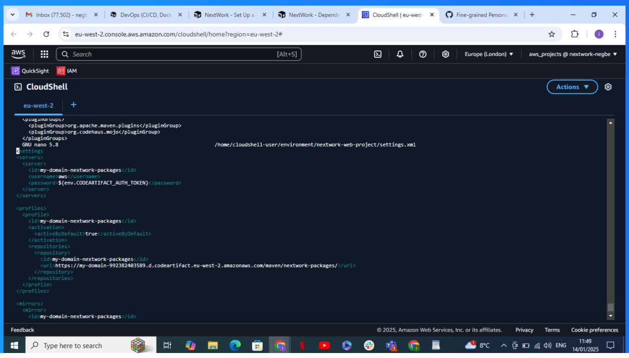
Connecting my project with CodeArtifact

I connected my web app project (via my Cloud9 IDE) to CodeArtifact to securely manage, store, and share dependencies. It ensures reliable access to packages and resolves dependencies faster during builds or deployments.

I created a new file, settings.xml, in my web app

settings.xml is a Maven configuration file that defines global settings, such as repository URLs, authentication credentials, and build profiles. It ensures that Maven can fetch dependencies and interact with repositories like CodeArtifact efficientl

The snippets of code in settings.xml define servers for authentication with CodeArtifact, profiles for repository usage, and mirrors to route Maven requests. They enable secure and efficient dependency management for the project.


```
  <pluginGroups>
    <pluginGroup>org.apache.maven.plugins</pluginGroup>
    <pluginGroup>org.codehaus.mojo</pluginGroup>
  </pluginGroups>
  GNU nano 5.8                                    /home/cloudshell-user/environment/nextwork-web-project/settings.xml
<settings>
<servers>
  <server>
    <id>my-domain-nextwork-packages</id>
    <username>aws</username>
    <password>${env.CODEARTIFACT_AUTH_TOKEN}</password>
  </server>
</servers>

<profiles>
  <profile>
    <id>my-domain-nextwork-packages</id>
    <activation>
      <activeByDefault>true</activeByDefault>
    </activation>
    <repositories>
      <repository>
        <id>my-domain-nextwork-packages</id>
        <url>https://my-domain-992382403589.d.codeartifact.eu-west-2.amazonaws.com/maven/nextwork-packages/</url>
      </repository>
    </repositories>
  </profile>
</profiles>

<mirrors>
  <mirror>
    <id>my-domain-nextwork-packages</id>
```
eu-west-2.console.aws.amazon.com/cloudshell/home?region=eu-west-2#
CloudShell
eu-west-2
Actions
Feedback

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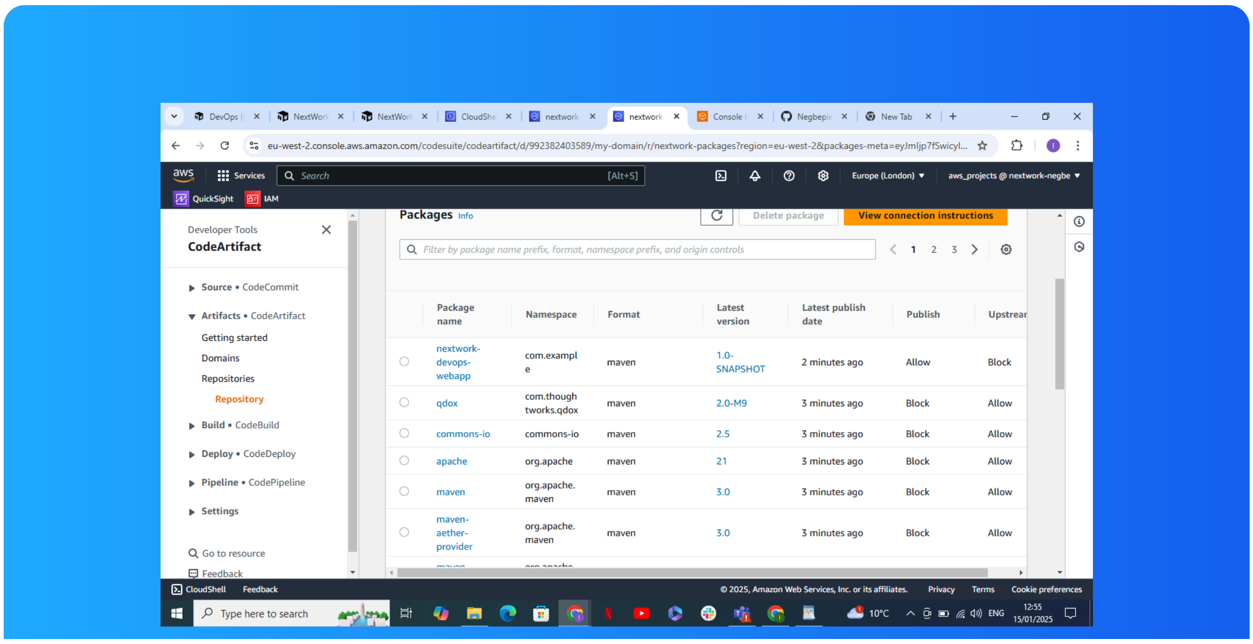
Testing the connection

To test the connection between Cloud9 and CodeArtifact, I compiled my web app

Compiling means converting human-readable source code written in programming languages like Java into machine-readable bytecode or binary code. This step ensures the program can run efficiently on a computer or virtual machine.

Success!

After compiling, I checked the nextwork-packages repository in AWS CodeArtifact. I saw the package nextwork-devops-webapp with the namespace com.example, format maven, and version 1.0-SNAPSHOT, confirming the successful upload.



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maven	org.apache.maven	maven	3.0	3 minutes ago	Block	Allow
maven-aether-provider	org.apache.maven	maven	3.0	3 minutes ago	Block	Allow

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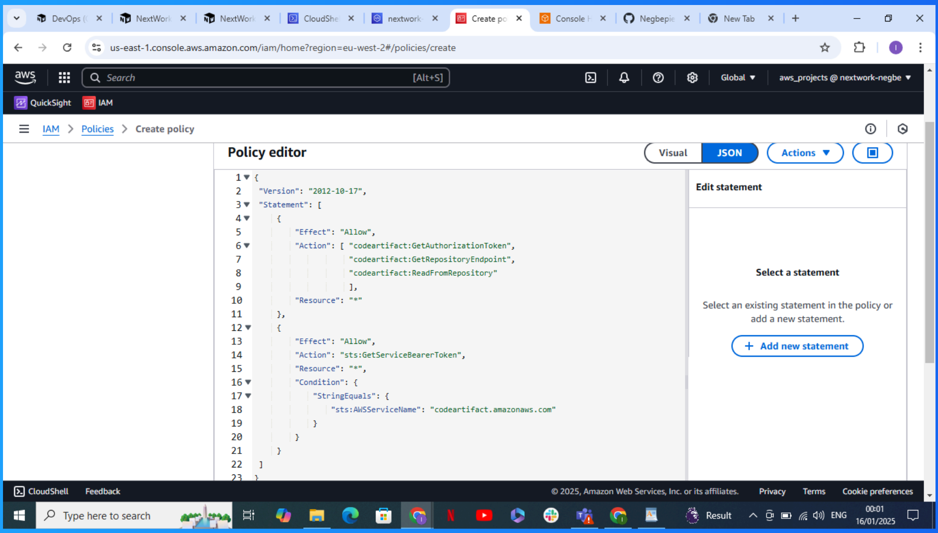
Create IAM policies

The importance of IAM policies

I also created an IAM policy because other DevOps services like AWS CodeBuild, AWS CodePipeline, and development environments (like CloudShell) need access to the dependency backups stored in CodeArtifact. This ensures seamless integration

I defined my IAM policy using JSON

This policy will allow actions like retrieving authorization tokens, getting repository endpoints, and reading from the CodeArtifact repository. It also permits obtaining service bearer tokens under specific conditions for seamless integration.


us-east-1.console.aws.amazon.com/iam/home?region=eu-west-2#/policies/create
IAM > Policies > Create policy
Policy editor
Visual
JSON
Actions
Edit statement
Select a statement
Select an existing statement in the policy or add a new statement.
Add new statement

```
{
 "Version": "2012-10-17",
 "Statement": [
    {
       "Effect": "Allow",
       "Action": [ "codeartifact:GetAuthorizationToken",
                   "codeartifact:GetRepositoryEndpoint",
                   "codeartifact:ReadFromRepository"
                   ],
       "Resource": "*"
    },
    {
       "Effect": "Allow",
       "Action": "sts:GetServiceBearerToken",
       "Resource": "*",
       "Condition": {
          "StringEquals": {
             "sts:AWSServiceName": "codeartifact.amazonaws.com"
          }
       }
    }
 ]
}
```

Everyone should be in a job they love.

Check out nextwork.org for more projects