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Secure Packages with CodeArtifact

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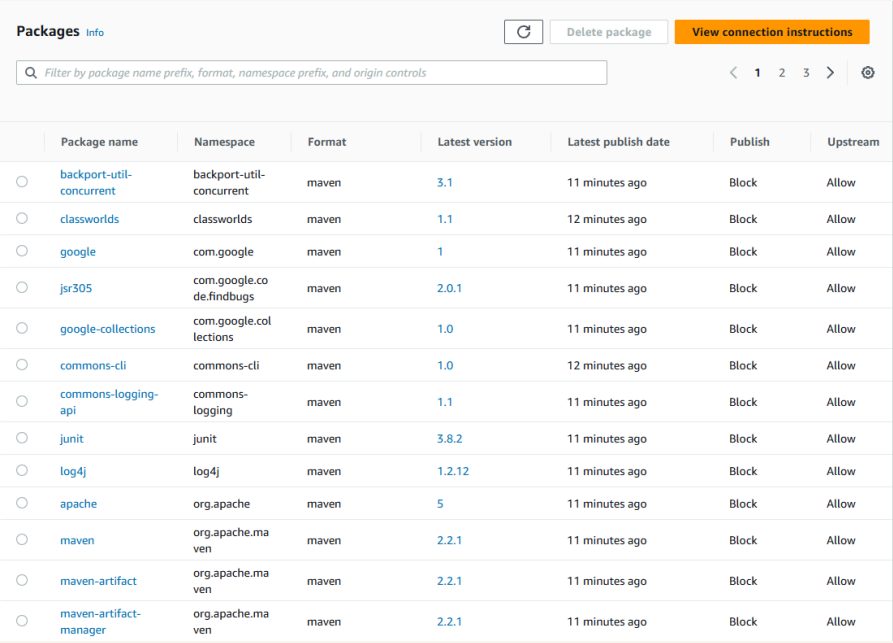


Packages Info

Delete package | View connection instructions

Filter by package name prefix, format, namespace prefix, and origin controls

1 2 3

Package name	Namespace	Format	Latest version	Latest publish date	Publish	Upstream
backport-util-concurrent	backport-util-concurrent	maven	3.1	11 minutes ago	Block	Allow
classworlds	classworlds	maven	1.1	12 minutes ago	Block	Allow
google	com.google	maven	1	11 minutes ago	Block	Allow
jsr305	com.google.code.findbugs	maven	2.0.1	11 minutes ago	Block	Allow
google-collections	com.google.collections	maven	1.0	11 minutes ago	Block	Allow
commons-cli	commons-cli	maven	1.0	12 minutes ago	Block	Allow
commons-logging-api	commons-logging	maven	1.1	11 minutes ago	Block	Allow
junit	junit	maven	3.8.2	11 minutes ago	Block	Allow
log4j	log4j	maven	1.2.12	11 minutes ago	Block	Allow
apache	org.apache	maven	5	11 minutes ago	Block	Allow
maven	org.apache.maven	maven	2.2.1	11 minutes ago	Block	Allow
maven-artifact	org.apache.maven	maven	2.2.1	11 minutes ago	Block	Allow
maven-artifact-manager	org.apache.maven	maven	2.2.1	11 minutes ago	Block	Allow

Introducing Today's Project!

In this project, I will demonstrate how to secure our web app's packages with CodeArtifact . I'm doing this project to learn how to set up a code repository in CodeArtifact.

Key tools and concepts

Services I used were CodeArtifact and IAM and Key concepts I learnt include how to create and attach a policy to a role and then attach it to EC2, I also learnt about Maven Central and how to use it to my advantage.

Project reflection

This project took me approximately 2 hours The most challenging part was connecting the EC2 and the CodeArtifact repositories together It was most rewarding to me because I learnt how the process works and used the principle of least privilege.

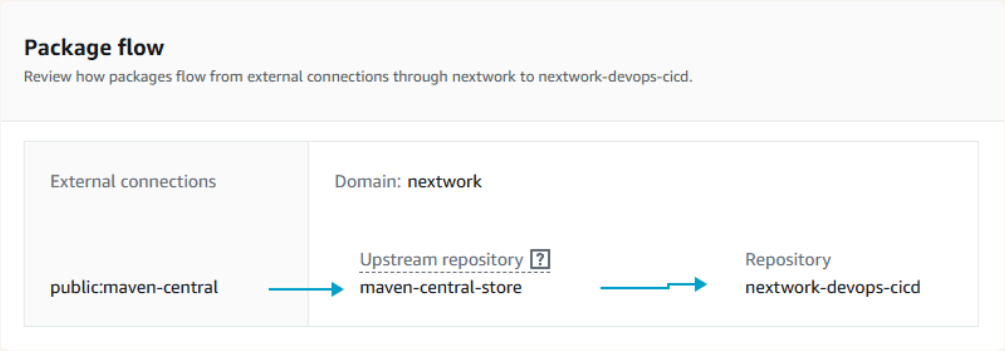
This project is part three of a series of DevOps projects where I'm building a CI/CD pipeline! I'll be working on the next project tomorrow :)

CodeArtifact Repository

CodeArtifact is a secure and central place to store all our software packages. Engineering teams use artifact repositories because they can use other developer's code instead of building everything from scratch.

A domain is a logical grouping in CodeArtifact that allows sharing of multiple repositories across accounts. My domain is used to centrally manage dependencies and control access across all related repositories

A CodeArtifact repository can have an upstream repository, which means having a backup library in case you are missing something. My repository's upstream repository is Maven Central.



CodeArtifact Security

Issue

To access CodeArtifact, we need EC2 to have permission... I ran into an error when retrieving a token because EC2 doesn't know who we are...this is a security feature by AWS following the principle of least privilege.

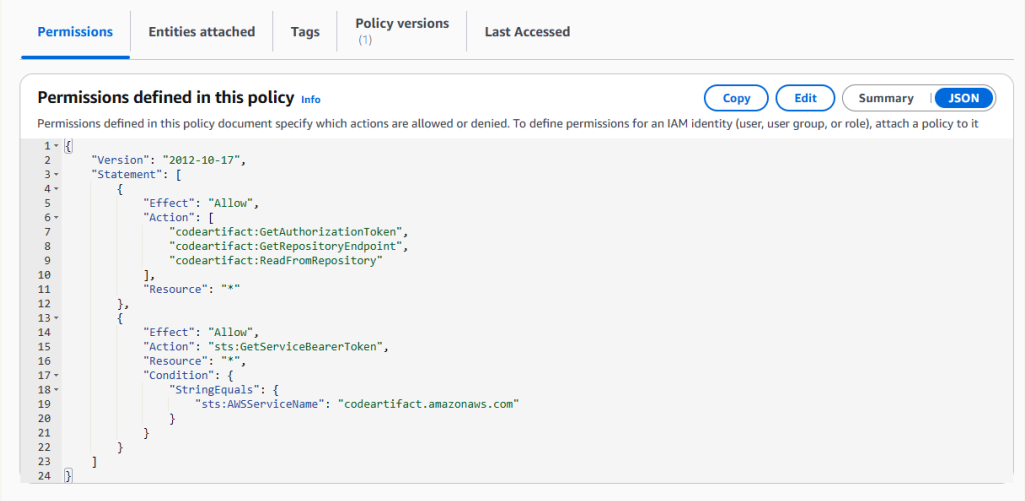
Resolution

To resolve the error with my security token, I attached an IAM role with CodeArtifact access to my EC2 instance. This resolved the error because it allowed the instance to retrieve credentials automatically.

It's security best practice to use IAM roles because of the AWS principle of least privilege.

The JSON policy attached to my role

The JSON policy I set up grants CodeArtifact the necessary permissions to access necessary resources following the principle of least privilege.

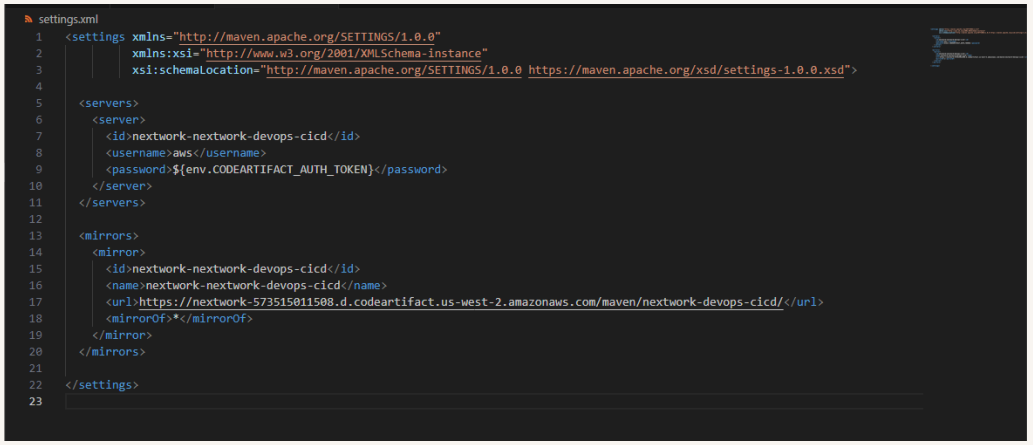


Maven and CodeArtifact

To test the connection between Maven and CodeArtifact, I compiled my web app using settings.xml

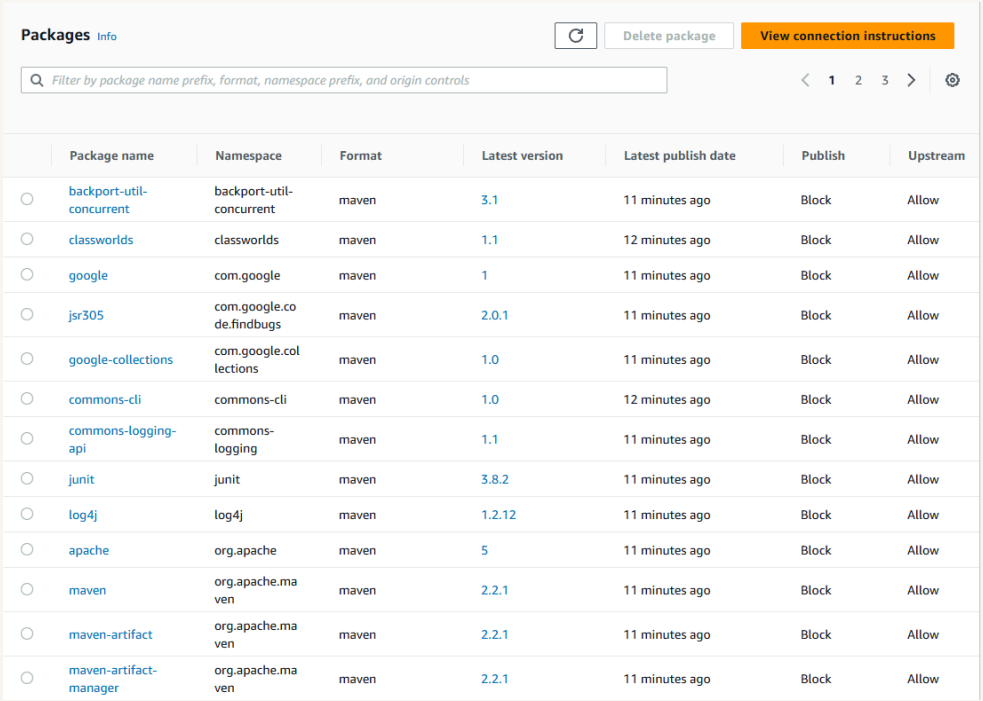
The settings.xml file configures Maven to check for needed dependencies in CodeArtifact repository.

Compiling means that Maven processes our project's source code and retrieves dependencies from CodeArtifact. CodeArtifact stores and manages these dependencies and can also store your compiled artifacts for sharing or future use.



Verify Connection

After compiling, I checked my CodeArtifact repository and I noticed that a bunch of packages appeared there.



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google-collections	com.google.collections	maven	1.0	11 minutes ago	Block	Allow
commons-cli	commons-cli	maven	1.0	12 minutes ago	Block	Allow
commons-logging-api	commons-logging	maven	1.1	11 minutes ago	Block	Allow
junit	junit	maven	3.8.2	11 minutes ago	Block	Allow
log4j	log4j	maven	1.2.12	11 minutes ago	Block	Allow
apache	org.apache	maven	5	11 minutes ago	Block	Allow
maven	org.apache.maven	maven	2.2.1	11 minutes ago	Block	Allow
maven-artifact	org.apache.maven	maven	2.2.1	11 minutes ago	Block	Allow
maven-artifact-manager	org.apache.maven	maven	2.2.1	11 minutes ago	Block	Allow

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