CONTINUOUS INTEGRATION DEVOPS PROJECT ON AWS CLOUD

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

RGUKT

Rajiv Gandhi University of Knowledge Technologies

R.K.VALLEY

Submitted by

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T Ravi Kumar

under the guidance of

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Assistant Professor CSE

RGUKT RK VALLEY.

DECLARATION

We hereby declare that the report of the B.Tech Mini Project Wor k entitled "**Continuous integration on of AWS cloud**" which is being submitted to Rajiv Gandhi University of Knowledge Technologies, RK Valley, in partial full fillment of the requirements for the award of Degree of Bachelor of Technology in Computer Science and Engineering, is a bonafide report of the work .The material contained in this report has not been submitted to any university or institution for award of any degree.

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Dept. Of Computer Science and Engineering.

RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES

RGUKT

(A.P.Government Act 18 of
2008) RGUKT, RK VALLEY

Department of Computer Science and Engineering

CERTIFICATE FOR PROJECT COMPLETION

This is certify that the project entitled "**Continuous integration on of AWS cloud**" submitted by **K Balaji Raju(R170517) ,T Ravi kumar(R170524)**,under our guidance and supervision for the partial full fillment for the degree Bachelor of Technology in Computer Science and Engineering during the academic semester -2 ,2021-2022 at RGUKT , RK VALLEY. To the best of my knowledge, the results embodied in this dissertation work have not been submitted to any University or Institute for the award of any degree or diploma.

Project Internal Guide	**Head of the Department**
Mrs Shaik shabana	Mr. Harinadha.P
Assistant Professor	HOD Of CSE
RGUKT, RK Valley	RGUKT, RK Valley

ACKNOWLEDGMENT

The satisfaction that accompanies the successful completion of any task would be incomplete without the mention of the people who made it possible and whose constant guidance and encouragement crown all the efforts success.

I am extremely grateful to our respected Director,Prof. K. SANDHYA RANI for fostering an excellent academic climate in our institution.

I also express my sincere gratitude to our respected Head of the Department Mr. Harinadha.P for his encouragement, overall guidance in viewing this project a good asset and effort in bringing out this project.

I would like to convey thanks to our guide at college Mrs Shaik shabana for his guidance, encouragement, co-operation and kindness during the entire duration of the course and academics.

My sincere thanks to all the members who helped me directly and indirectly in the completion of project work. I express my profound gratitude to all our friends and family members for their encouragement.

INDEX

Abstract

This is a simple DevOps Project where we can contineous intrgration on aws cloud.By this project, We can create a Continuous Integration for our code. In this project I used aws cloud for continuous integration.

All code developers need to build and test their code for the consistence ,if we go with manual testing that will take a lot of time efforts and man power efforts and cost effective also.

In this project I developed a aws cloud based pipeline which will automatically build the code and test the code and deploy for each commit to the git. we connect the our git to the aws codebuild. Which will automatically sends(notification) status of the code build (that is failed or successed or deployed)to the user mail for each commit so that user can take appropriate action.

This pipeline overcome the all (manual build,test,deploy) and

these activities goes on automatically. Which will reduce the all human efforts and time and cost too.

Introduction

Integration with tools extra overhead of managing genkins, nexus , sonar cube server.

So we use AWS cloud based pipeline with the help we can setup continuous integration easily, Very quickly and no need to manage server. Therefore there is no overhead.

Scenario

We are in product development(Agile SDLC). So bunch of developers make regular code changes all code needs to be build and tested.

Current situation

Usually build release team will do(build and test) job. Or Developers responsibility to merge and integrate.

Problem

In an agile SDLC, There will be regular/frequent code changes. Developers needs to be depended on build and release team usually to test code and more to the next release cycle. But not so frequently code will be tested. Which accumulates bug and errors in the code.

Developers need to rework to fix these bugs and errors. Which is time consuming process, And teams would be already approaching deadline.

Product owners needs to test the code as fast as it building. But not possible because build and release team doing manual process and also approvals ticketing system place. Which delays the process further.

Solution

1)build and test for every commit

regular build and test for every commit as soon as code changes the code needs to build and tested at the same time. But the process is manual this is not possible.

2)Automated build and test process

So we need automated build and test and deploy process.

3)Notify for every build status

Whenever there is a build and test the developers should get notified automatically.

If there is a build failure, if code is not passing our quality gates, or if there is any bug or any kind of error developers should stop whatever they are doing and first they will fix their code.

4)Fix code if bugs or errors found instantly rather then waiting.

So if we have such kind of automation framework in-place which will regularly build and test the code for every commit. Then we are also removing dependency of developers of build and release team. This process itself called as CI process. There are various ways of setting it we can use

1)CI-server
2)Cloud-service

Problem with CI service

Then there will be a extra overhead to managing those servers. There will be regular maintenance. We need extra time and effort to do it

CI server maintenance

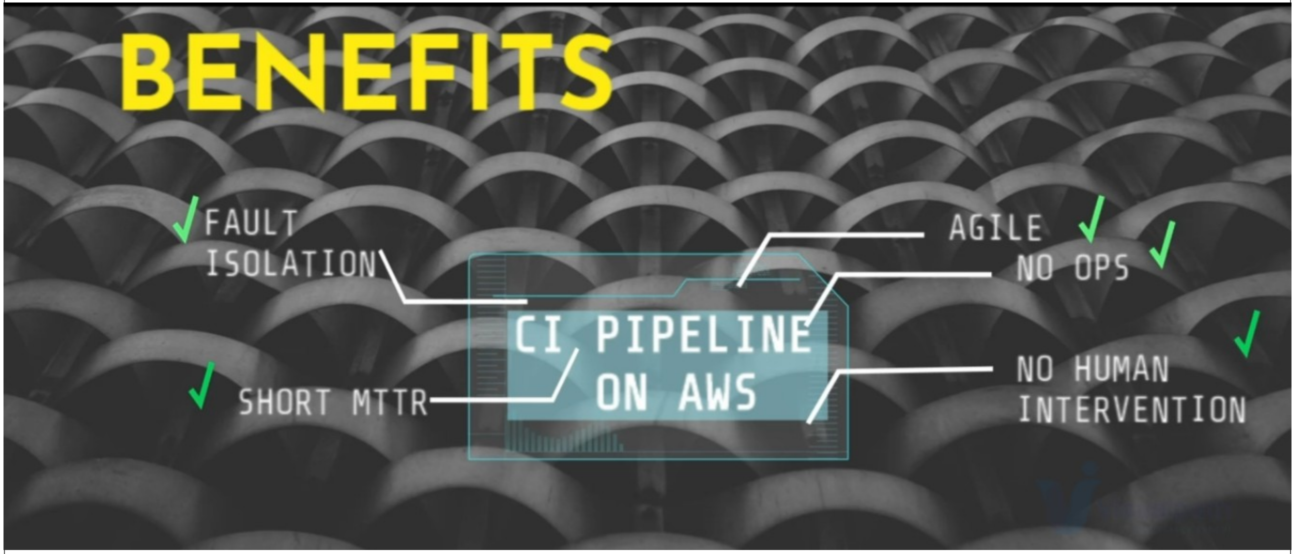
Operational overhead to maintain server like jenkins, nexus, sonar, Git etc.

solution

If we don't want extra overhead of managing CI server we can use some very cool AWS services to set-up the CI-pipeline.

Cloud services for CI to remove operational overhead

Benefits CI pipeline on AWS/Advantages



1)short MTTR(mean time to repair)

2)Agile

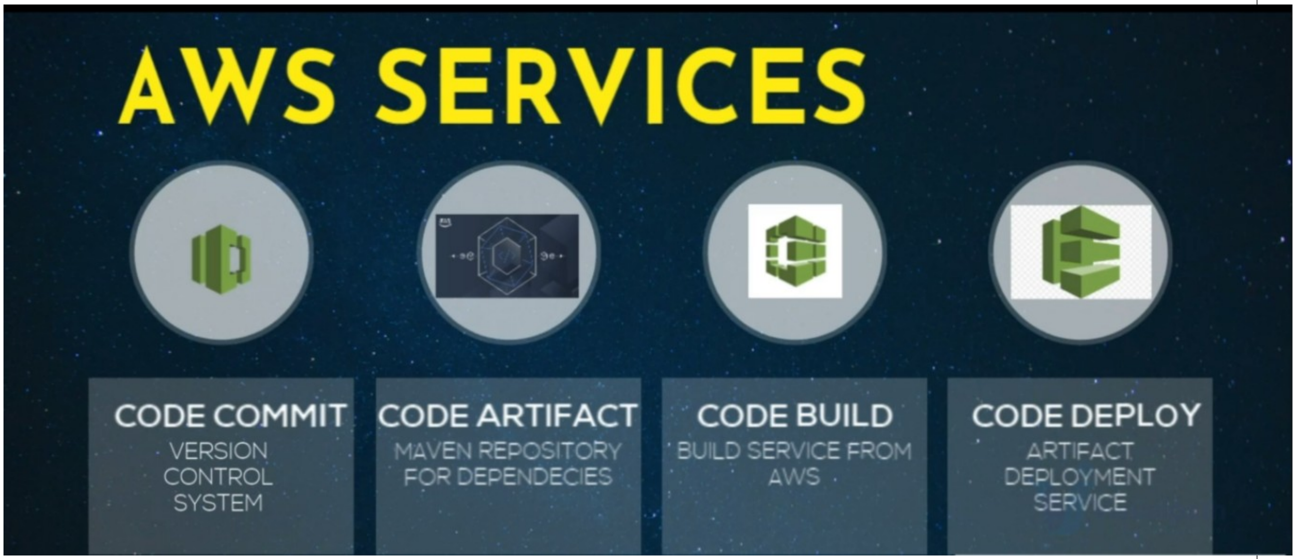
3)No human interaction

4)No operational overhead

5)Fault isolation quickly

So we will get the all the benefits of CI without any operational overhead. If we do it on AWS cloud.

AWS SERVICES



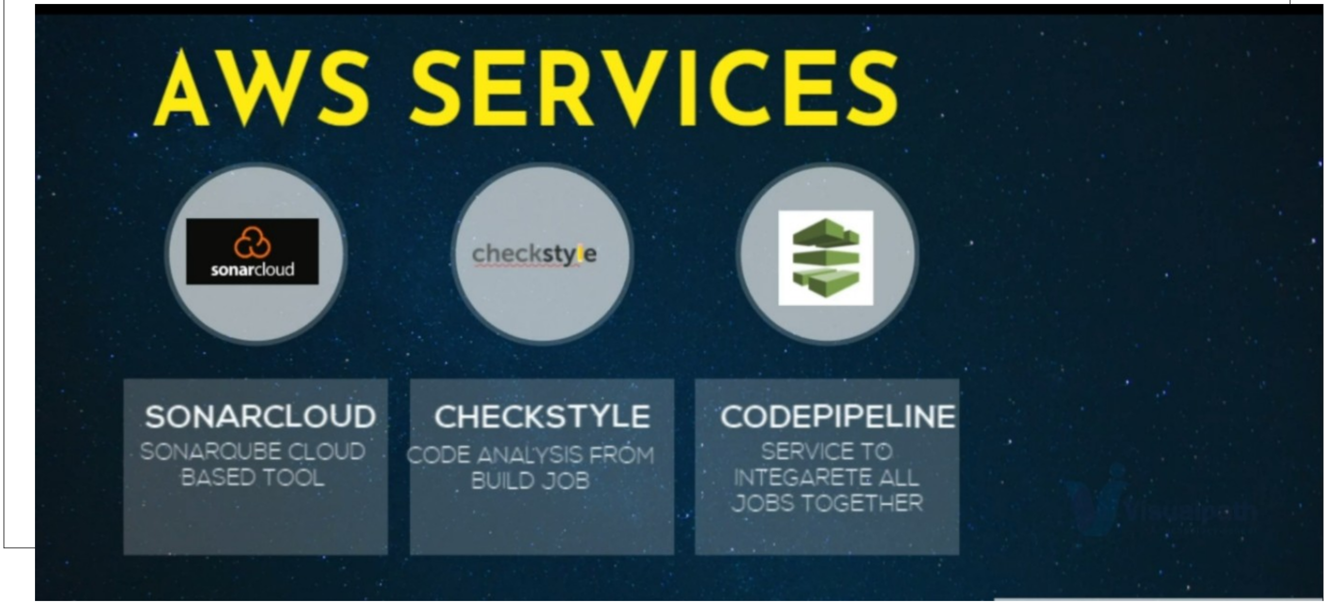
AWS SERVICES

CODE COMMIT
VERSION CONTROL SYSTEM

CODE ARTIFACT
MAVEN REPOSITORY FOR DEPENDECIES

CODE BUILD
BUILD SERVICE FROM AWS

CODE DEPLOY
ARTIFACT DEPLOYMENT SERVICE



sonarcloud
checkstyle

AWS SERVICES

SONARCLOUD
SONARQUBE CLOUD BASED TOOL

CHECKSTYLE
CODE ANALYSIS FROM BUILD JOB

CODEPIPELINE
SERVICE TO INTEGARETE ALL JOBS TOGETHER

1)code commit

it is a version control system or version control remote repository

2)code artifact

->maven repository for dependencies

->maven is going to download dependence from code-artifact repository

3)code build(build services from aws to run our build process)

we are going to run
maven-build
code-analysis
sonar-cube analysis
to run these three we use aws code build service

4)code deploy(artifact deployment service)

we will use to deploy artifact in this project and we are going to deploy our artifact to s3 bucket.

5)sonar-cloud(sonar cube cloud based tool)

we are going to create account and we are going to push our code to sonar cloud.

6)check-style(code analysis from build job)

->for code analysis we will use it.

7)code pipeline(service to interface all jobs together)

PURPOSE

The purpose of this project is implementing continuous integration on AWS cloud by using AWS services, And deploying automatically on s3 bucket. With the help of this we can achieve automatically build, test, deploy.

The key goals of continuous integration are to find and address bugs quicker, improve software quality, and reduce the time it takes to validate and release new software updates.

Intended Audience

The intended audience will be the developers and they can change their code whenever they want and they can get notified status of their code for every single commit so that they can rectify their mistakes if any.

1 Developers

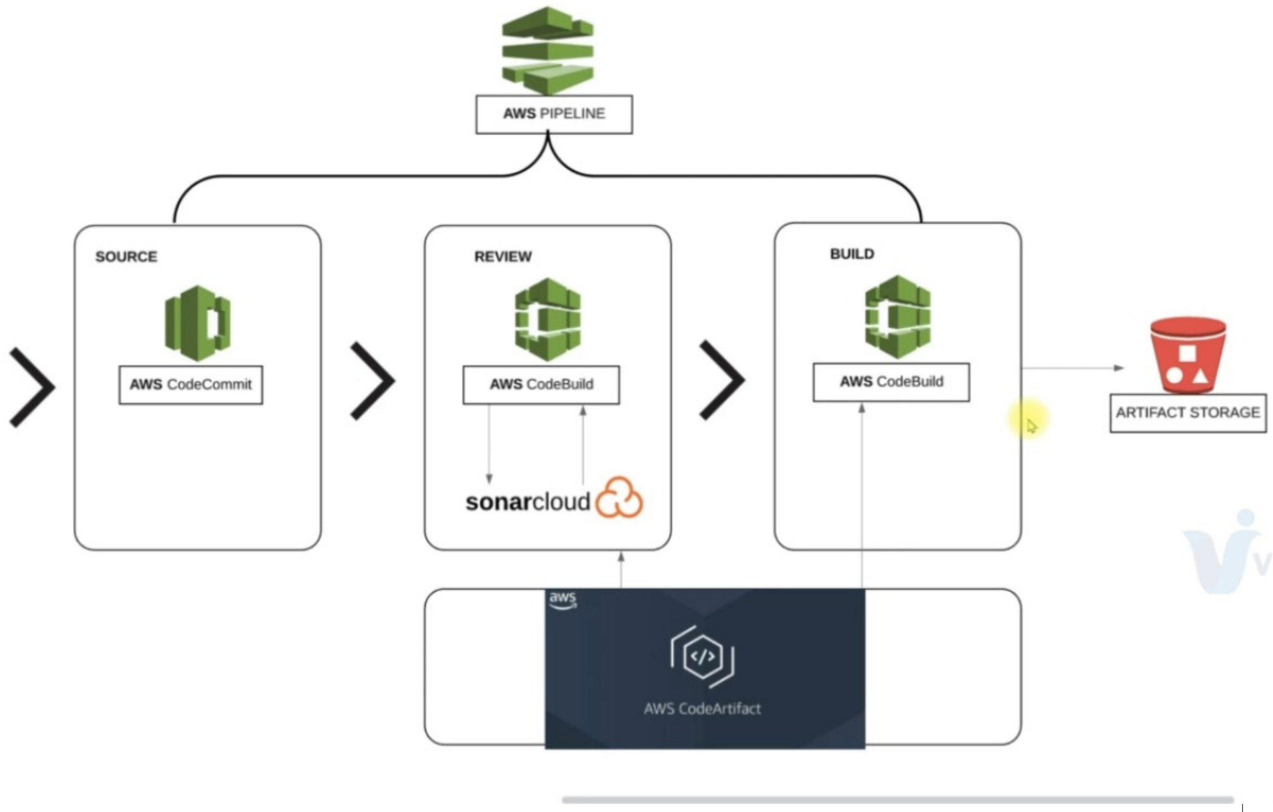
product vision

The project vision is to develop a continuous integration on AWS cloud.

Technologies

1.AWS cloud
2.sonar cloud

Architecture



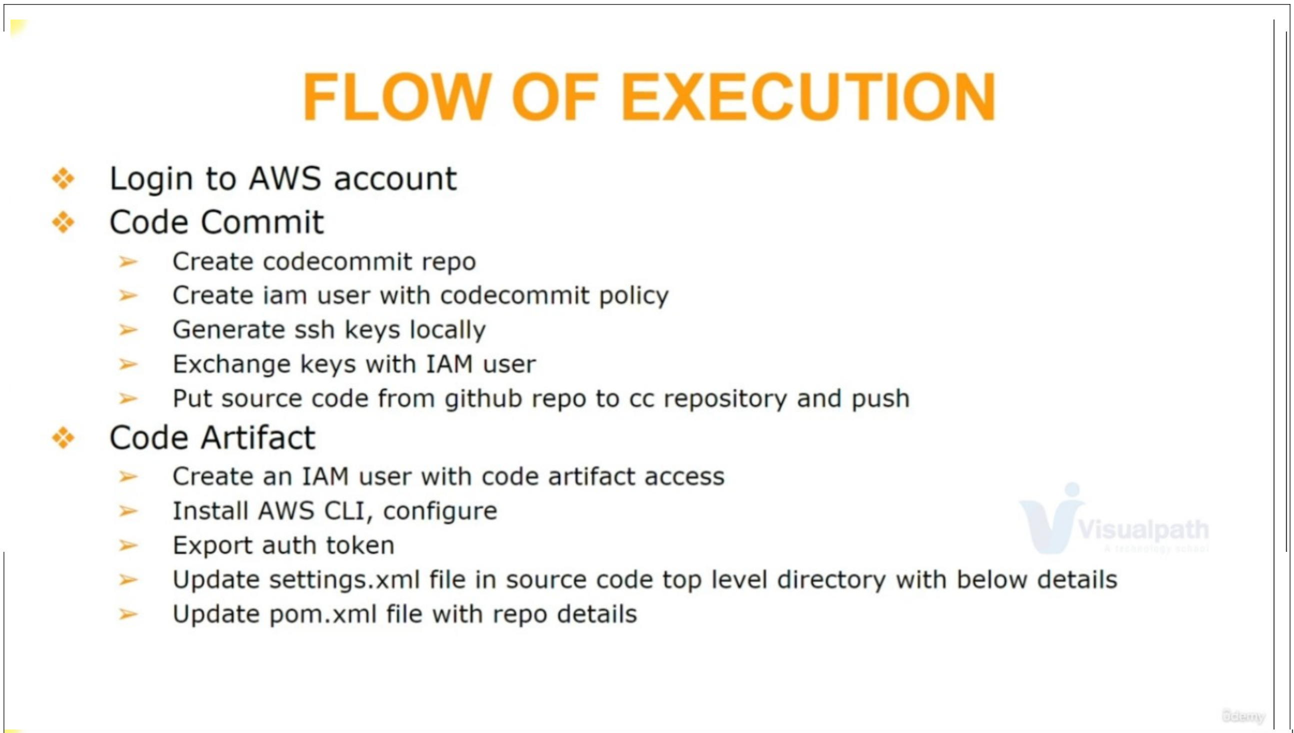
Developers are going to code changes by using their IDE like intellij or what ever they are doing. There will be a git repository the remote repository will be our code commit whenever there is a code commit the pipe line will get triggered.

->First code get pushed to aws code commit which will be getting for us in aws.

->As soon as there is a new commit the next job will triggered which is a code build job .

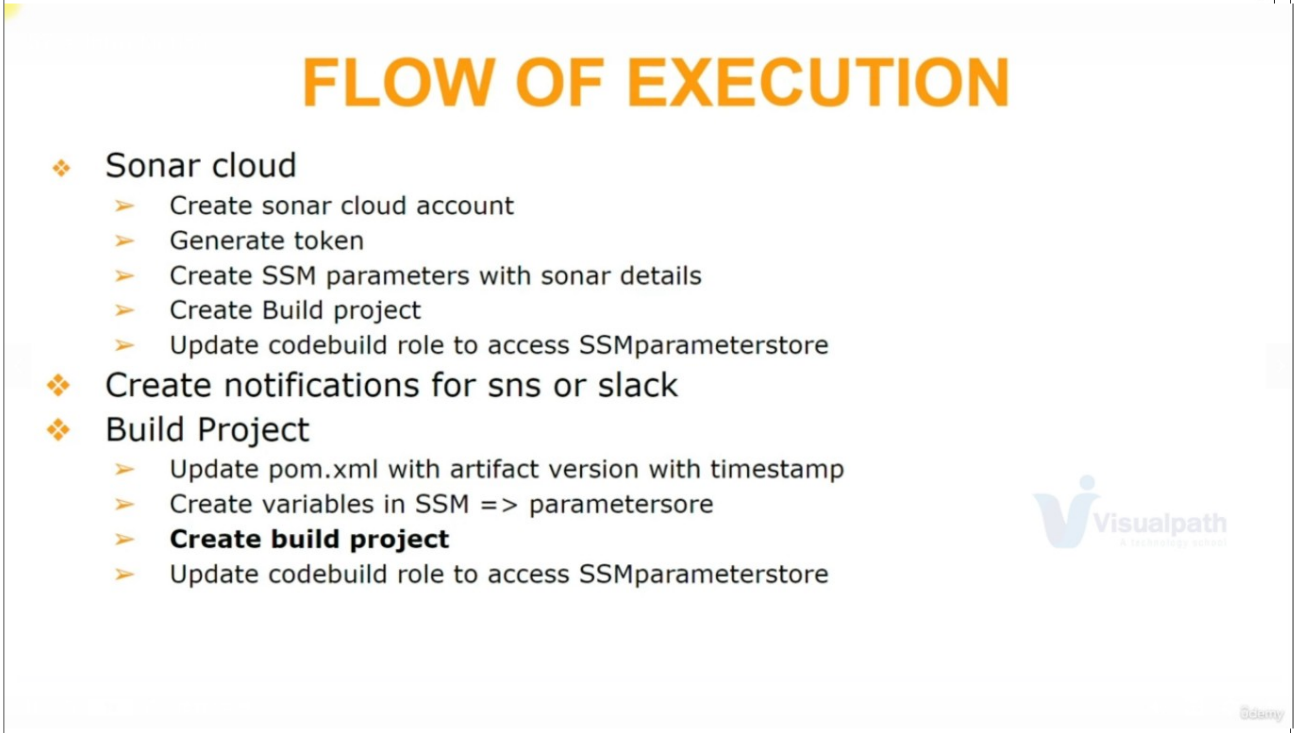
But which is going to run sonar scan and do code analysis. We will also run check style from this job for any dependency it will going to download from code-artifact and then this job will also report to sonar cloud and get the results. Which then will trigger another code build job and this will building artifact and this job we are going to build our artifact version it and store in an s3 -bucket . And also dependency required for maven- build. It will be again downloaded from aws code-artifact service.

Flow of execution



FLOW OF EXECUTION

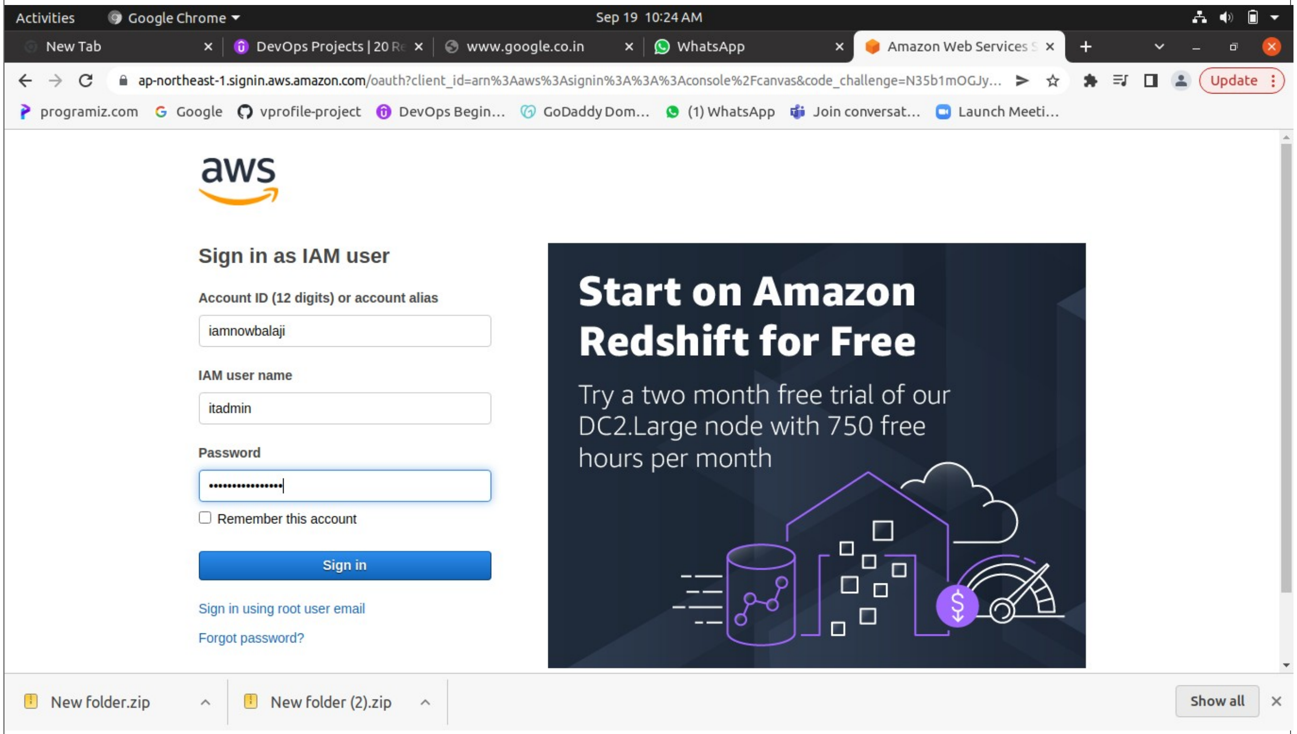
- Login to AWS account
- Code Commit
  - Create codecommit repo
  - Create iam user with codecommit policy
  - Generate ssh keys locally
  - Exchange keys with IAM user
  - Put source code from github repo to cc repository and push
- Code Artifact
  - Create an IAM user with code artifact access
  - Install AWS CLI, configure
  - Export auth token
  - Update settings.xml file in source code top level directory with below details
  - Update pom.xml file with repo details



FLOW OF EXECUTION

- Sonar cloud
  - Create sonar cloud account
  - Generate token
  - Create SSM parameters with sonar details
  - Create Build project
  - Update codebuild role to access SSMparameterstore
- Create notifications for sns or slack
- Build Project
  - Update pom.xml with artifact version with timestamp
  - Create variables in SSM => parametersore
  - **Create build project**
  - Update codebuild role to access SSMparameterstore

1)**Login to AWS account**



ap-northeast-1.signin.aws.amazon.com/oauth?client_id=arn%3Aaws%3Asignin%3A%3A%3Aconsole%2Fcanvas&code_challenge=N35b1mOGJy...

Sign in as IAM user

Account ID (12 digits) or account alias

iamnowbalaji

IAM user name

itadmin

Password

•••••••••••••••

□ Remember this account

Sign in

Sign in using root user email

Forgot password?

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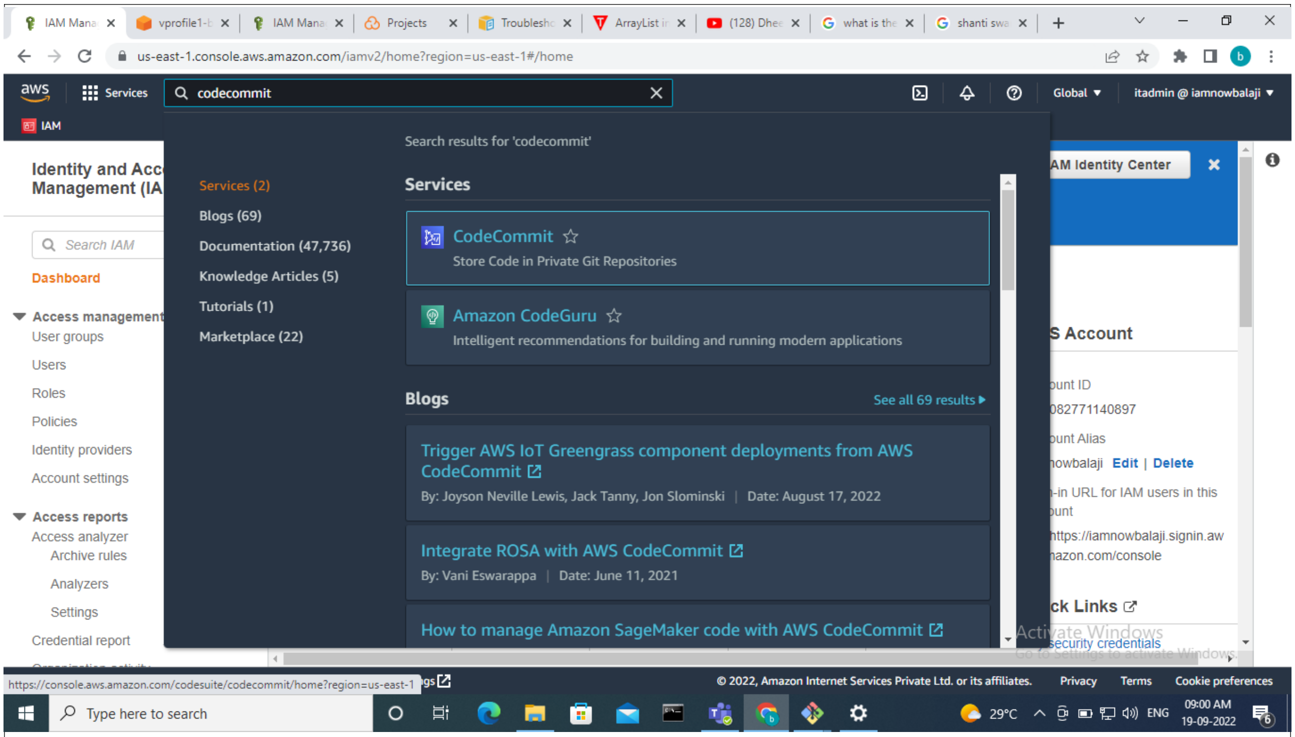
2)code commit



Search results for 'codecommit'

Services (2)
Blogs (69)
Documentation (47,736)
Knowledge Articles (5)
Tutorials (1)
Marketplace (22)

Services

CodeCommit
Store Code in Private Git Repositories

Amazon CodeGuru
Intelligent recommendations for building and running modern applications

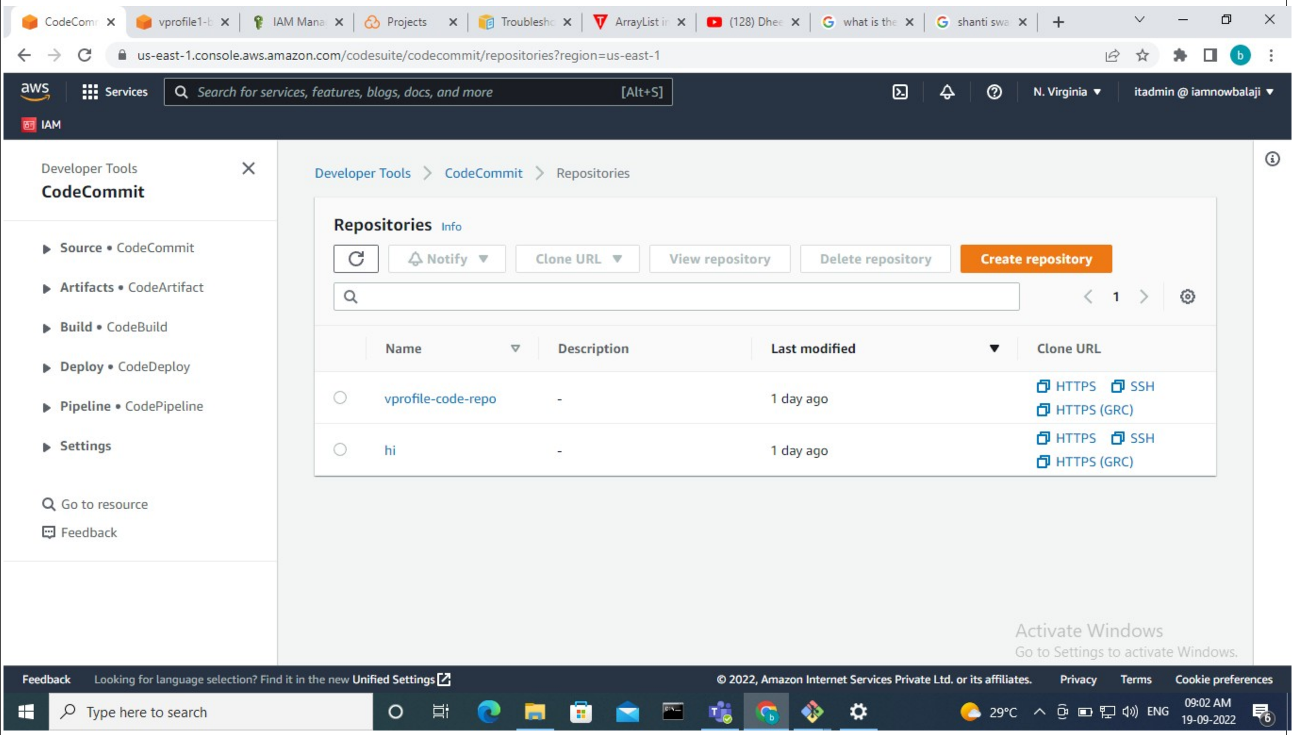
Blogs — See all 69 results

Trigger AWS IoT Greengrass component deployments from AWS CodeCommit
By: Joyson Neville Lewis, Jack Tanny, Jon Slominski | Date: August 17, 2022

Integrate ROSA with AWS CodeCommit
By: Vani Eswarappa | Date: June 11, 2021

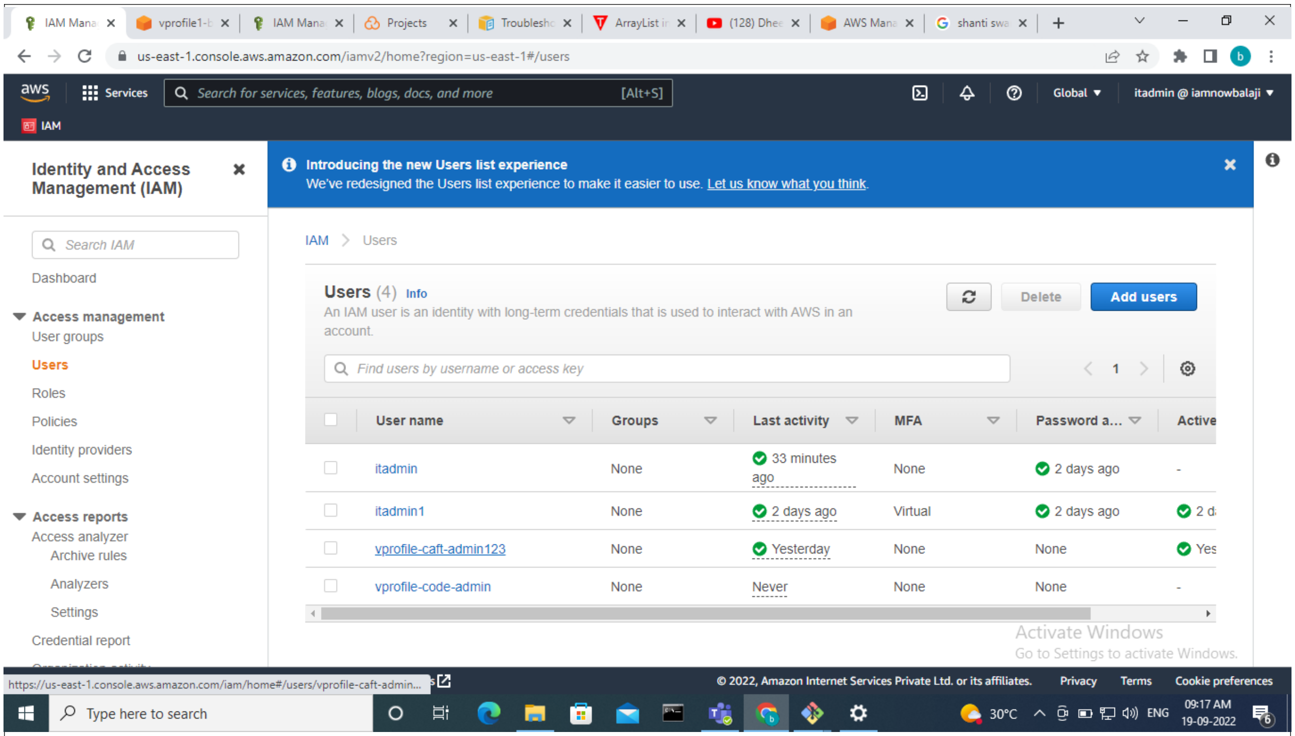
How to manage Amazon SageMaker code with AWS CodeCommit

2.1 create code commit repository



	Name	Description	Last modified	Clone URL
○	vprofile-code-repo	-	1 day ago	HTTPS SSH HTTPS (GRC)
○	hi	-	1 day ago	HTTPS SSH HTTPS (GRC)

2.2 Create I am user with code commit policy

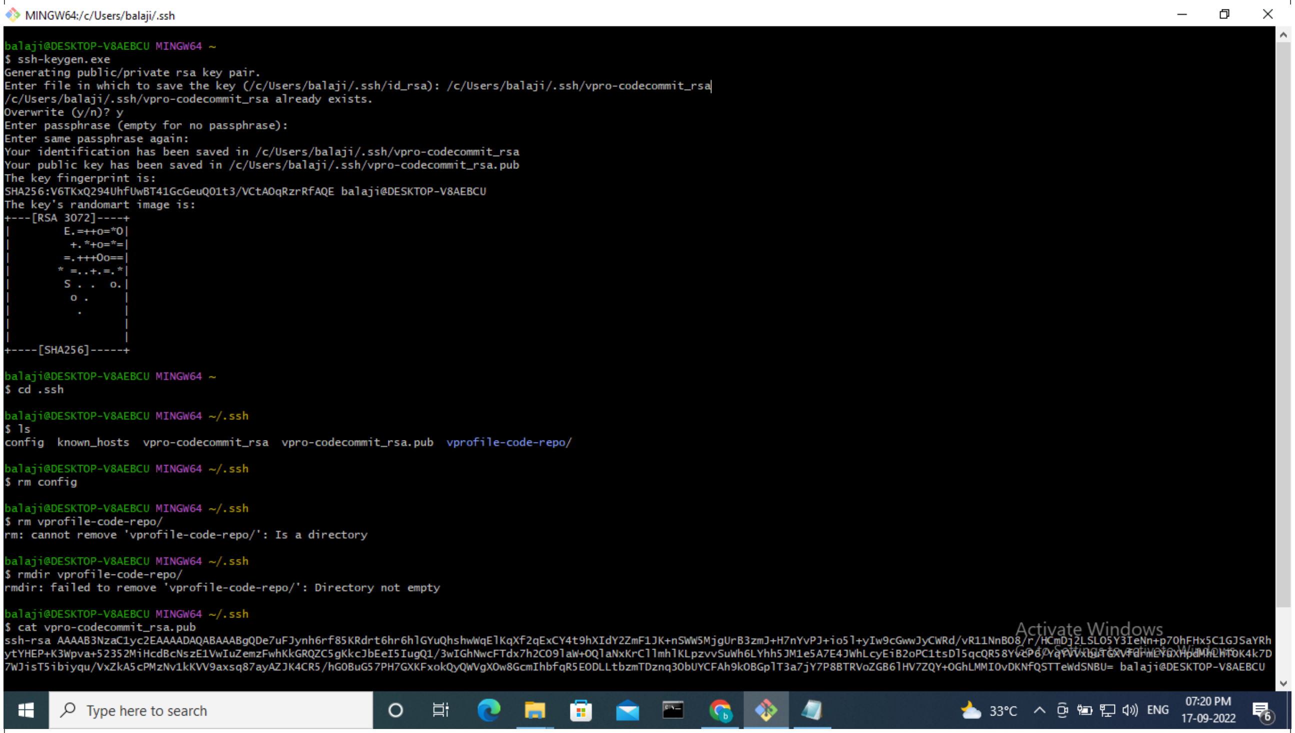


Introducing the new Users list experience
We've redesigned the Users list experience to make it easier to use. Let us know what you think.

Users (4) Info
An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.

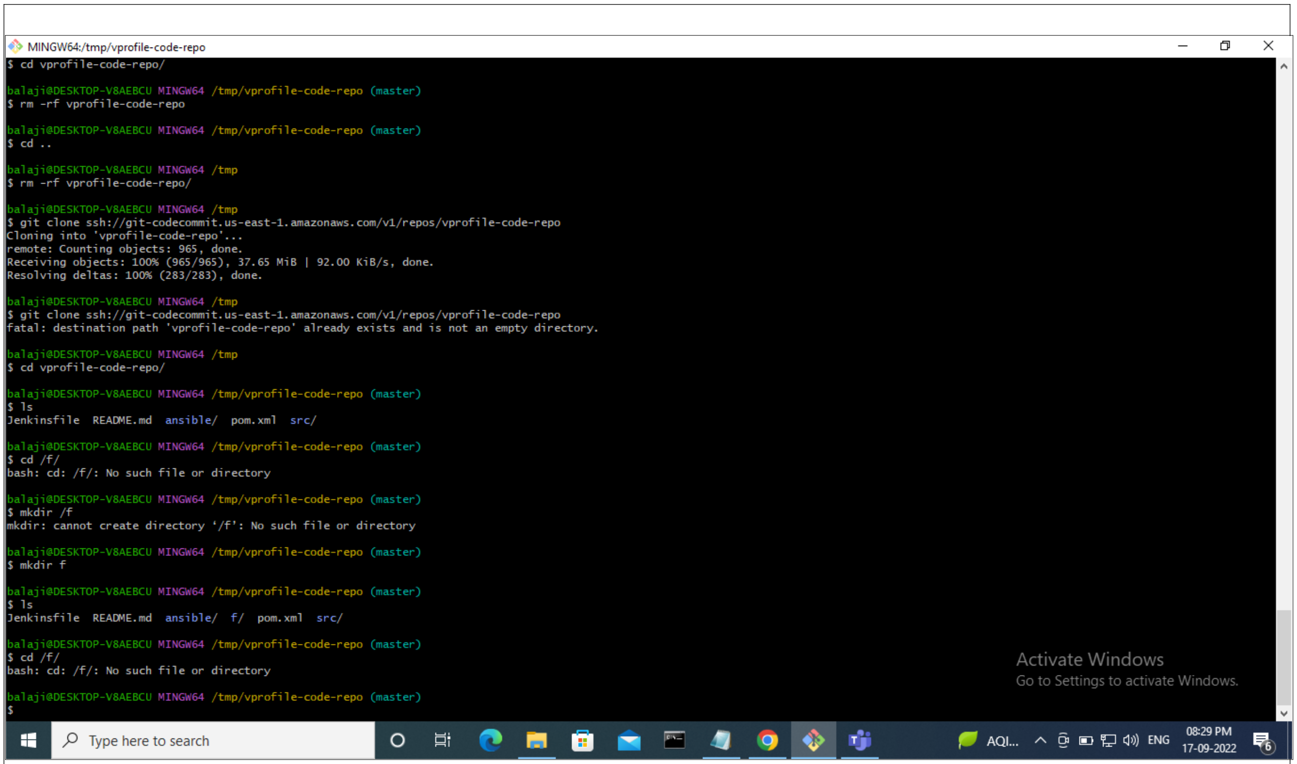
User name	Groups	Last activity	MFA	Password a...	Active
itadmin	None	✓ 33 minutes ago	None	✓ 2 days ago	-
itadmin1	None	✓ 2 days ago	Virtual	✓ 2 days ago	✓ 2 d
vprofile-caft-admin123	None	✓ Yesterday	None	None	✓ Yes
vprofile-code-admin	None	Never	None	None	-

2.3 Generate ssh key locally



```
balaji@DESKTOP-V8AEBCU MINGW64 ~
$ ssh-keygen.exe
Generating public/private rsa key pair.
Enter file in which to save the key (/c/Users/balaji/.ssh/id_rsa): /c/Users/balaji/.ssh/vpro-codecommit_rsa
/c/Users/balaji/.ssh/vpro-codecommit_rsa already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /c/Users/balaji/.ssh/vpro-codecommit_rsa
Your public key has been saved in /c/Users/balaji/.ssh/vpro-codecommit_rsa.pub
The key fingerprint is:
SHA256:V6TKxQ294UhfUwBT41GcGeuQ01t3/VCtAOqRzrRfAQE balaji@DESKTOP-V8AEBCU
The key's randomart image is:
+---[RSA 3072]----+
|        E.=++o=*O|
|         +.*+o=*=|
|        =.+++Oo==|
|       * =..+.=.*|
|        S . .  o.|
|         o .     |
|          .      |
|                 |
|                 |
+----[SHA256]-----+

balaji@DESKTOP-V8AEBCU MINGW64 ~
$ cd .ssh

balaji@DESKTOP-V8AEBCU MINGW64 ~/.ssh
$ ls
config  known_hosts  vpro-codecommit_rsa  vpro-codecommit_rsa.pub  vprofile-code-repo/

balaji@DESKTOP-V8AEBCU MINGW64 ~/.ssh
$ rm config

balaji@DESKTOP-V8AEBCU MINGW64 ~/.ssh
$ rm vprofile-code-repo/
rm: cannot remove 'vprofile-code-repo/': Is a directory

balaji@DESKTOP-V8AEBCU MINGW64 ~/.ssh
$ rmdir vprofile-code-repo/
rmdir: failed to remove 'vprofile-code-repo/': Directory not empty

balaji@DESKTOP-V8AEBCU MINGW64 ~/.ssh
$ cat vpro-codecommit_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQDe7uFJynh6rf85KRdrt6hr6hlGYuQhshwWqElKqXf2qExCY4t9hXIdY2ZmF1JK+nSWW5MjgUrB3zmJ+H7nYvPJ+io5l+yIw9cGwwJyCWRd/vR11NnBO8/r/HCmDj2LSLO5Y3IeNn+p7OhFHx5C1GJSaYRh
ytYHEP+K3Wpva+52352MiHcdBcNszE1VwIuZemzFwhKkGRQZC5gKkcJbEeI5IugQ1/3wIGhNwcFTdx7h2CO9laW+OQlaNxKrCllmhlKLpzvvSuWh6LYhh5JM1e5A7E4JWhLcyEiB2oPC1tsDl5qcQR58YvcP6/YqYVVxbuTGXVfdrmLYuXHpdMhLHTOK4k7D
7WJisT5ibiyqu/VxZkA5cPMzNv1kKVV9axsq87ayAZJK4CR5/hGOBuG57PH7GXKFxokQyQWVgXOw8GcmIhbfqR5EODLLtbzmTDznq3ObUYCFAh9kOBGplT3a7jY7P8BTRVoZGB6lHV7ZQY+OGhLMMIOvDKNfQSTTeWdSNBU= balaji@DESKTOP-V8AEBCU
```

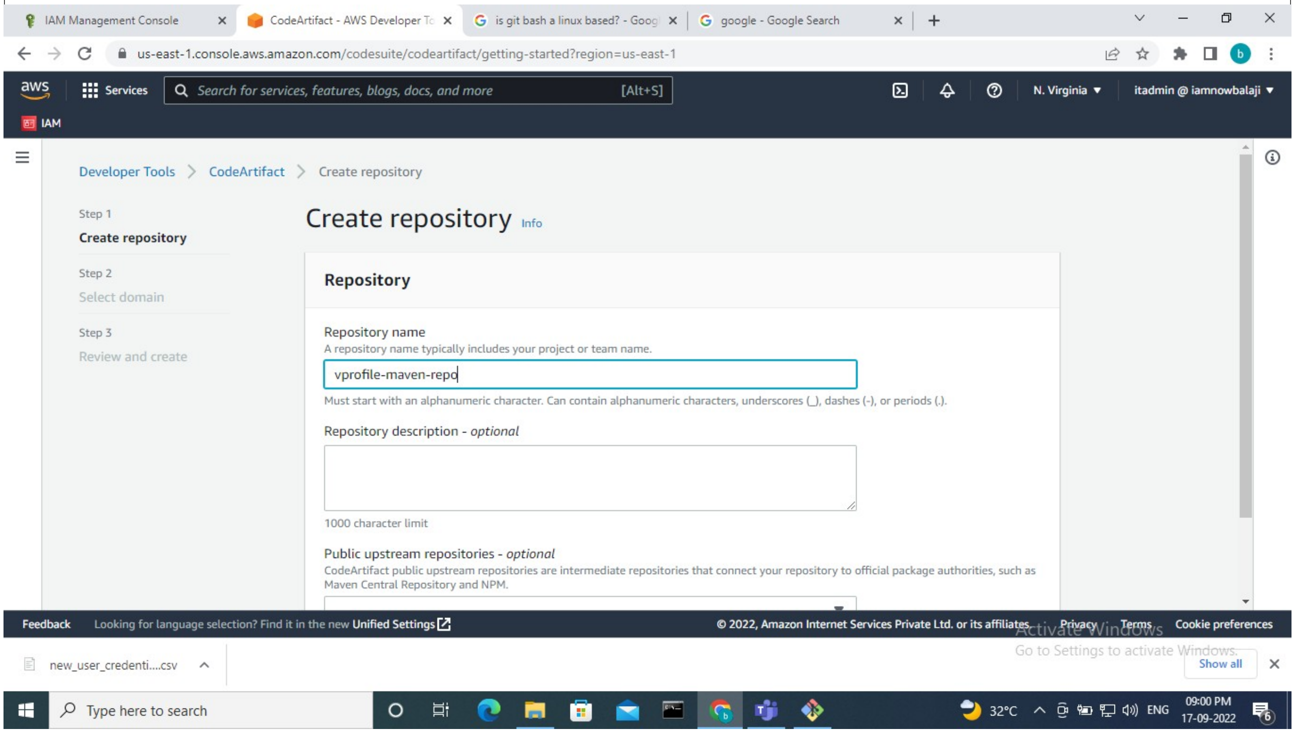
2.4Put source code from git-hub repository to code commit repository and push



MINGW64:/tmp/vprofile-code-repo

```
$ cd vprofile-code-repo/

balaji@DESKTOP-V8AEBCU MINGW64 /tmp/vprofile-code-repo (master)
$ rm -rf vprofile-code-repo

balaji@DESKTOP-V8AEBCU MINGW64 /tmp/vprofile-code-repo (master)
$ cd ..

balaji@DESKTOP-V8AEBCU MINGW64 /tmp
$ rm -rf vprofile-code-repo/

balaji@DESKTOP-V8AEBCU MINGW64 /tmp
$ git clone ssh://git-codecommit.us-east-1.amazonaws.com/v1/repos/vprofile-code-repo
Cloning into 'vprofile-code-repo'...
remote: Counting objects: 965, done.
Receiving objects: 100% (965/965), 37.65 MiB | 92.00 KiB/s, done.
Resolving deltas: 100% (283/283), done.

balaji@DESKTOP-V8AEBCU MINGW64 /tmp
$ git clone ssh://git-codecommit.us-east-1.amazonaws.com/v1/repos/vprofile-code-repo
fatal: destination path 'vprofile-code-repo' already exists and is not an empty directory.

balaji@DESKTOP-V8AEBCU MINGW64 /tmp
$ cd vprofile-code-repo/

balaji@DESKTOP-V8AEBCU MINGW64 /tmp/vprofile-code-repo (master)
$ ls
Jenkinsfile  README.md  ansible/  pom.xml  src/

balaji@DESKTOP-V8AEBCU MINGW64 /tmp/vprofile-code-repo (master)
$ cd /f/
bash: cd: /f/: No such file or directory

balaji@DESKTOP-V8AEBCU MINGW64 /tmp/vprofile-code-repo (master)
$ mkdir /f
mkdir: cannot create directory '/f': No such file or directory

balaji@DESKTOP-V8AEBCU MINGW64 /tmp/vprofile-code-repo (master)
$ mkdir f

balaji@DESKTOP-V8AEBCU MINGW64 /tmp/vprofile-code-repo (master)
$ ls
Jenkinsfile  README.md  ansible/  f/  pom.xml  src/

balaji@DESKTOP-V8AEBCU MINGW64 /tmp/vprofile-code-repo (master)
$ cd /f/
bash: cd: /f/: No such file or directory

balaji@DESKTOP-V8AEBCU MINGW64 /tmp/vprofile-code-repo (master)
$
```

3) code artifact



IAM Management Console
CodeArtifact - AWS Developer To
is git bash a linux based? - Goog
google - Google Search
us-east-1.console.aws.amazon.com/codesuite/codeartifact/getting-started?region=us-east-1
aws
Services
Search for services, features, blogs, docs, and more
[Alt+S]
N. Virginia ▼
itadmin @ iamnowbalaji ▼
IAM

Developer Tools > CodeArtifact > Create repository

Step 1
Create repository

Step 2
Select domain

Step 3
Review and create

Create repository Info

Repository

Repository name
A repository name typically includes your project or team name.

vprofile-maven-repo

Must start with an alphanumeric character. Can contain alphanumeric characters, underscores (_), dashes (-), or periods (.).

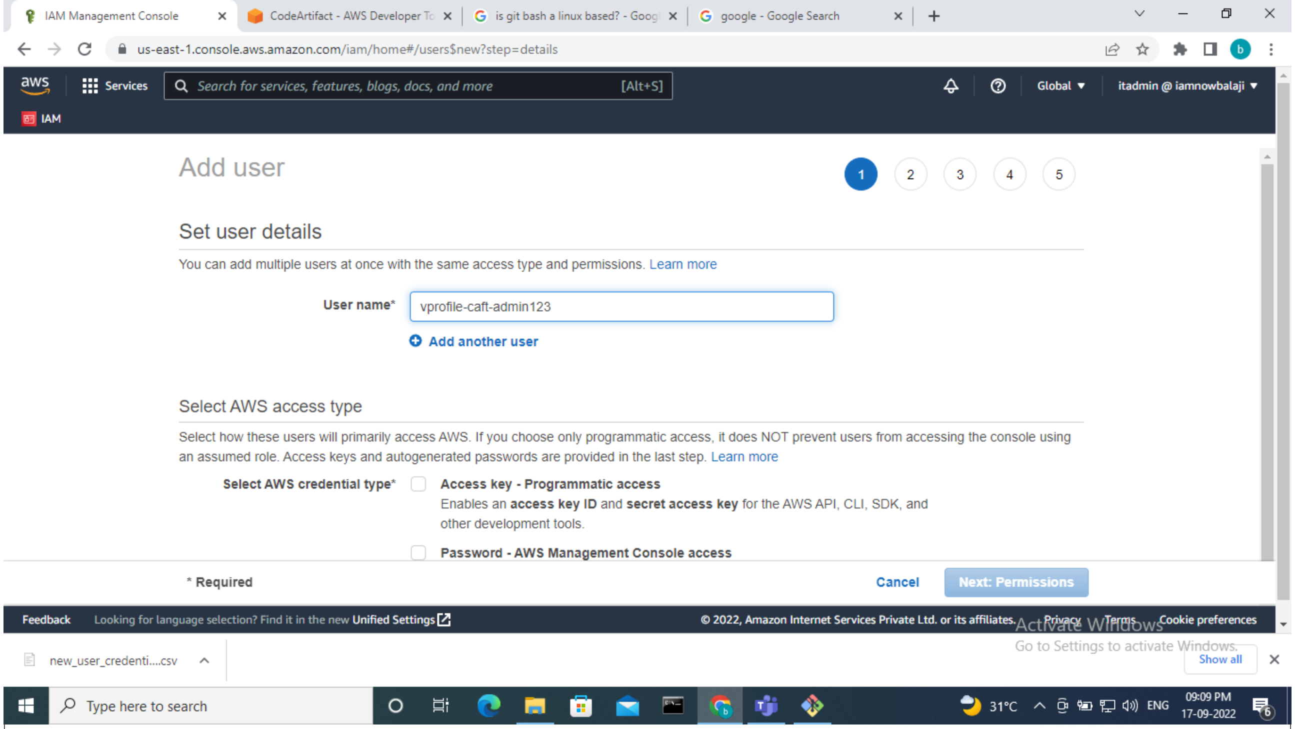
Repository description - *optional*

1000 character limit

Public upstream repositories - *optional*
CodeArtifact public upstream repositories are intermediate repositories that connect your repository to official package authorities, such as Maven Central Repository and NPM.

Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Internet Services Private Ltd. or its affiliates.
Privacy
Terms
Cookie preferences
Activate Windows
Go to Settings to activate Windows.
new_user_credenti....csv
Show all
Type here to search
32°C
ENG
09:00 PM
17-09-2022

3.1 create I am user with code artifact access



us-east-1.console.aws.amazon.com/iam/home#/users$new?step=details

Add user

Set user details

You can add multiple users at once with the same access type and permissions. Learn more

User name* vprofile-caft-admin123

Add another user

Select AWS access type

Select how these users will primarily access AWS. If you choose only programmatic access, it does NOT prevent users from accessing the console using an assumed role. Access keys and autogenerated passwords are provided in the last step. Learn more

Select AWS credential type*

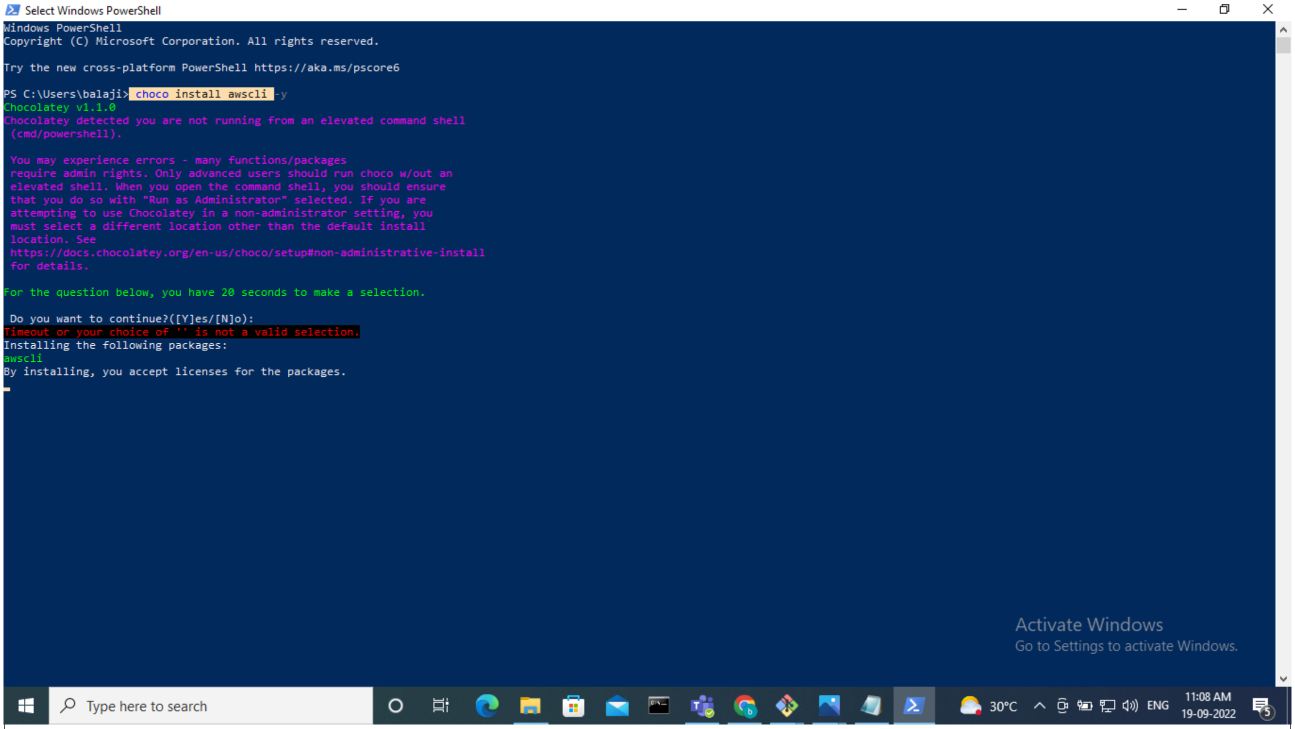
□ **Access key - Programmatic access**
Enables an **access key ID** and **secret access key** for the AWS API, CLI, SDK, and other development tools.

□ **Password - AWS Management Console access**

* Required

IAM Management Console
CodeArtifact - AWS Developer To
is git bash a linux based? - Goog
google - Google Search
Services
Search for services, features, blogs, docs, and more [Alt+S]
Global
itadmin @ iamnowbalaji
IAM
1
2
3
4
5
Cancel
Next: Permissions
Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Internet Services Private Ltd. or its affiliates.
Privacy
Terms
Cookie preferences
Activate Windows
Go to Settings to activate Windows.
new_user_credenti....csv
Show all
Type here to search
31°C
ENG
09:09 PM
17-09-2022

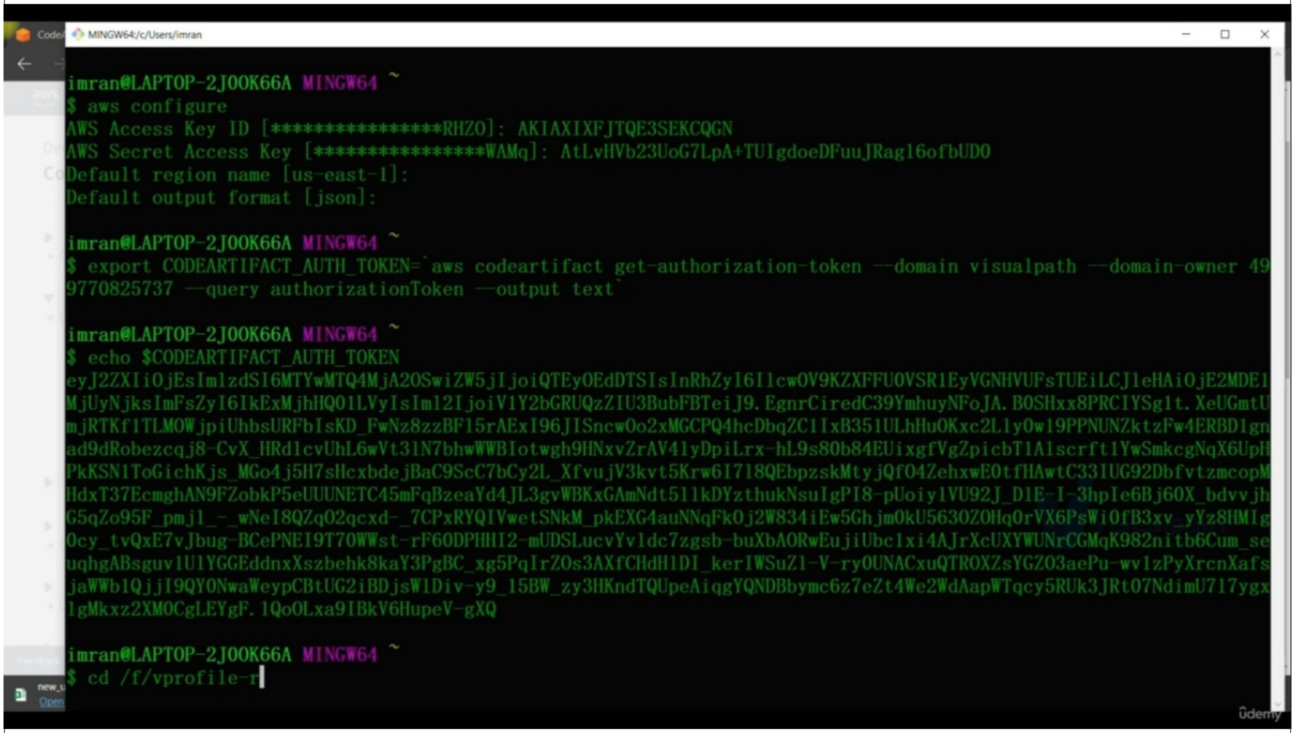
3.2 Install aws-cli, configure



Select Windows PowerShell

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\balaji> choco install awscli -y
Chocolatey v1.1.0
Chocolatey detected you are not running from an elevated command shell
 (cmd/powershell).

 You may experience errors - many functions/packages
 require admin rights. Only advanced users should run choco w/out an
 elevated shell. When you open the command shell, you should ensure
 that you do so with "Run as Administrator" selected. If you are
 attempting to use Chocolatey in a non-administrator setting, you
 must select a different location other than the default install
 location. See
 https://docs.chocolatey.org/en-us/choco/setup#non-administrative-install
 for details.

For the question below, you have 20 seconds to make a selection.

 Do you want to continue?([Y]es/[N]o):
Timeout or your choice of '' is not a valid selection.
Installing the following packages:
awscli
By installing, you accept licenses for the packages.
```

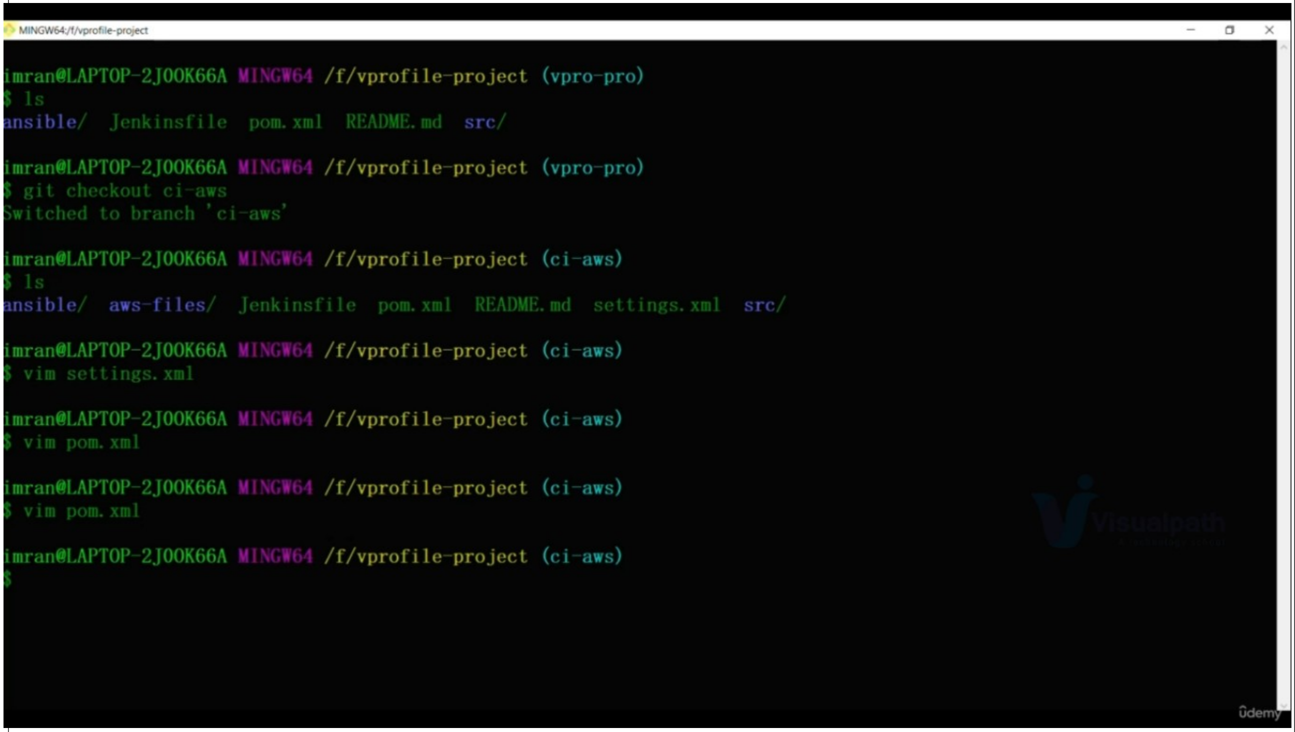
3.3 Export authentication token



MINGW64:/c/Users/imran

```
imran@LAPTOP-2JOOK66A MINGW64 ~
$ aws configure
AWS Access Key ID [****************RHZO]: AKIAXIXFJTQE3SEKCQGN
AWS Secret Access Key [****************WAMq]: 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
Default region name [us-east-1]:
Default output format [json]:

imran@LAPTOP-2JOOK66A MINGW64 ~
$ export CODEARTIFACT_AUTH_TOKEN=`aws codeartifact get-authorization-token --domain visualpath --domain-owner 49
9770825737 --query authorizationToken --output text`

imran@LAPTOP-2JOOK66A MINGW64 ~
$ echo $CODEARTIFACT_AUTH_TOKEN
eyJ2ZXIiOjEsImlzdSI6MTYwMTQ4MjA2OSwiZW5jIjoiQTEyOEdDTSIsInRhZyI6IlcwOV9KZXFFU0VSR1EyVGNHVUFsTUEiLCJleHAiOjE2MDE1
MjUyNjksImFsZyI6IkExMjhHQ01LVyIsIml2IjoiV1Y2bGRUQzZIU3BubFBTeiJ9.EgnrCiredC39YmhuyNFoJA.BOSHxx8PRCIYSg1t.XeUGmtU
mjRTKf1TLMOWjpiUhbsURFbIsKD_FwNz8zzBF15rAExI96JISncwOo2xMGCPQ4hcDbqZC1IxB351ULhHuOKxc2Ly0w19PPNUNZktzFw4ERBD1gn
ad9dRobezcqj8-CvX_HRd1cvUhL6wVt31N7bhwWWBIotwgh9HNxvZrAV4lyDpiLrx-hL9s80b84EUixgfVgZpicbT1A1scrft1YwSmkcgNqX6UpH
PkKSN1ToGichKjs_MGo4j5H7sHcxbdejBaC9ScC7bCy2L_XfvujV3kvt5Krw6I718QEbpzskMtyjQfO4ZehxwE0tfHAwtC33IUG92DbfvtzmcopM
HdxT37EcmghAN9FZobkP5eUUUNETC45mFqBzeaYd4JL3gvWBKxGAmNdt511kDYzthukNsuIgPI8-pUoiy1VU92J_D1E-I-3hpIe6Bj60X_bdvvjh
G5qZo95F_pmjl_-_wNeI8QZq02qcxd-_7CPxRYQIVwetSNkM_pkEXG4auNNqFk0j2W834iEw5GhjmOkU5630Z0Hq0rVX6PsWi0fB3xv_yYz8HMIg
Ocy_tvQxE7vJbug-BCePNEI9T70WWst-rF60DPHHI2-mUDSLucvYv1dc7zgsb-buXbAORwEujiUbc1xi4AJrXcUXYWUNrCGMqK982nitb6Cum_se
uqhgABsguv1U1YGGEddnxXszbehk8kaY3PgBC_xg5PqIrZOs3AXfCHdH1DI_kerIWSuZ1-V-ryOUNACxuQTROXZsYGZO3aePu-wv1zPyXrcnXafs
jaWWb1QjjI9QYONwaWeypCBtUG2iBDjsW1Div-y9_15BW_zy3HKndTQUpeAiqgYQNDBbymc6z7eZt4We2WdAapWTqcy5RUk3JRt07NdimU717ygx
1gMkxz2XMOCgLEYgF.1QoOLxa9IBkV6HupeV-gXQ

imran@LAPTOP-2JOOK66A MINGW64 ~
$ cd /f/vprofile-r
```

3.4 Update settings.xml file in source code top level directory with below details

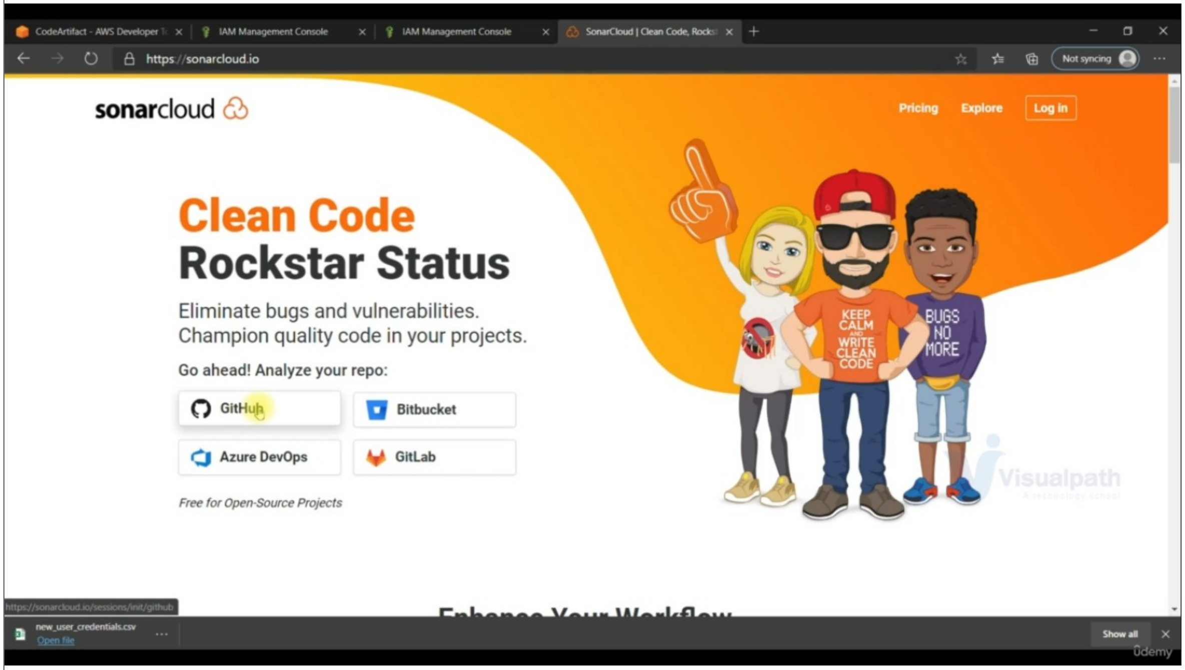


MINGW64:/f/vprofile-project

```
imran@LAPTOP-2JOOK66A MINGW64 /f/vprofile-project (vpro-pro)
$ ls
ansible/  Jenkinsfile  pom.xml  README.md  src/

imran@LAPTOP-2JOOK66A MINGW64 /f/vprofile-project (vpro-pro)
$ git checkout ci-aws
Switched to branch 'ci-aws'

imran@LAPTOP-2JOOK66A MINGW64 /f/vprofile-project (ci-aws)
$ ls
ansible/  aws-files/  Jenkinsfile  pom.xml  README.md  settings.xml  src/

imran@LAPTOP-2JOOK66A MINGW64 /f/vprofile-project (ci-aws)
$ vim settings.xml

imran@LAPTOP-2JOOK66A MINGW64 /f/vprofile-project (ci-aws)
$ vim pom.xml

imran@LAPTOP-2JOOK66A MINGW64 /f/vprofile-project (ci-aws)
$ vim pom.xml

imran@LAPTOP-2JOOK66A MINGW64 /f/vprofile-project (ci-aws)
$
```

4)sonar cloud

4.1Create sonar cloud account



Clean Code
Rockstar Status

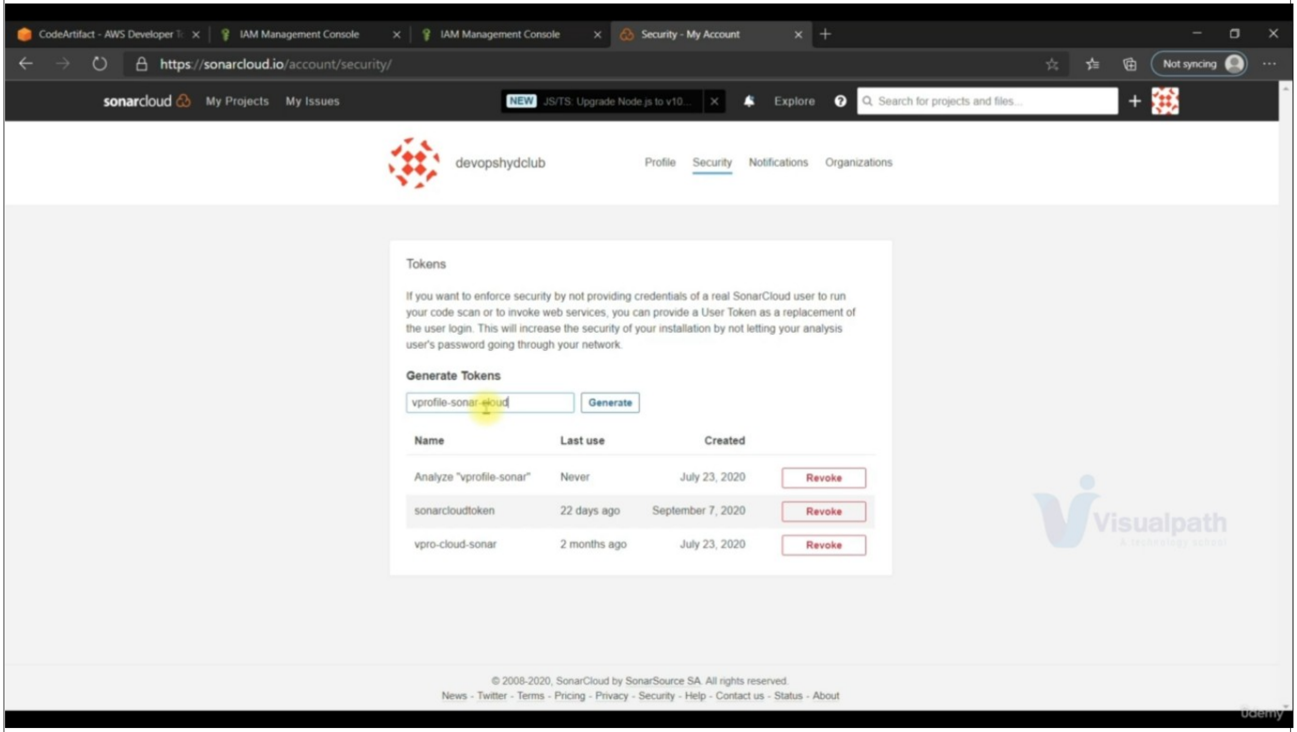
Eliminate bugs and vulnerabilities.
Champion quality code in your projects.

Go ahead! Analyze your repo:

Free for Open-Source Projects

Enhance Your Workflow

4.2Generate token



Tokens

If you want to enforce security by not providing credentials of a real SonarCloud user to run your code scan or to invoke web services, you can provide a User Token as a replacement of the user login. This will increase the security of your installation by not letting your analysis user's password going through your network.

Generate Tokens

vprofile-sonar-cloud Generate

Name	Last use	Created	
Analyze "vprofile-sonar"	Never	July 23, 2020	Revoke
sonarcloudtoken	22 days ago	September 7, 2020	Revoke
vpro-cloud-sonar	2 months ago	July 23, 2020	Revoke

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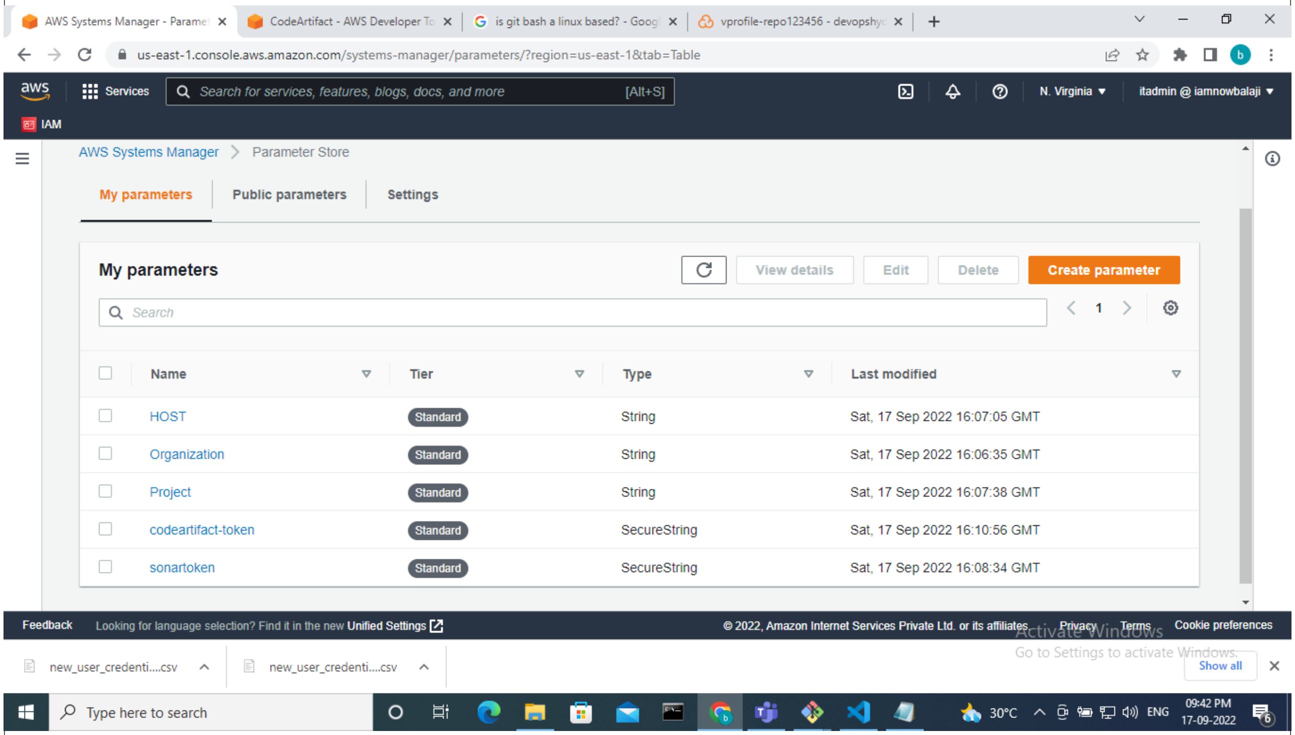
4.3Create SSM parameter with sonar details

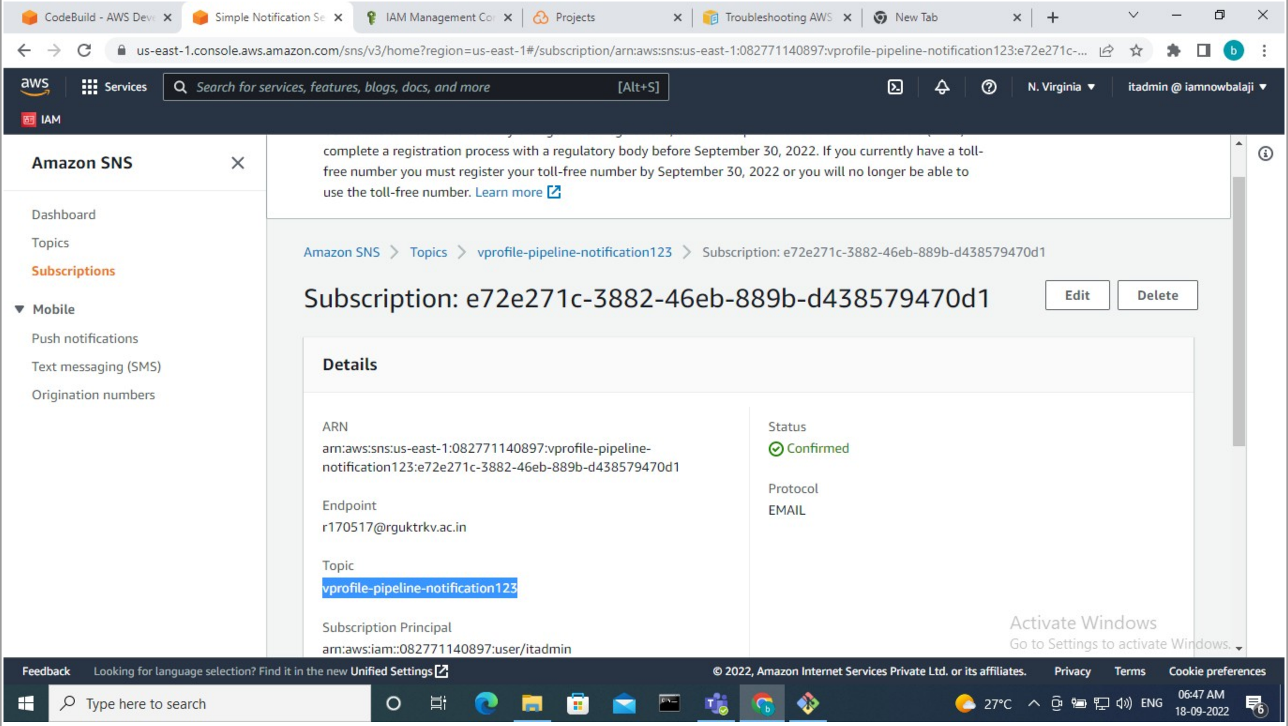


My parameters

Name	Tier	Type	Last modified
HOST	Standard	String	Sat, 17 Sep 2022 16:07:05 GMT
Organization	Standard	String	Sat, 17 Sep 2022 16:06:35 GMT
Project	Standard	String	Sat, 17 Sep 2022 16:07:38 GMT
codeartifact-token	Standard	SecureString	Sat, 17 Sep 2022 16:10:56 GMT
sonartoken	Standard	SecureString	Sat, 17 Sep 2022 16:08:34 GMT

us-east-1.console.aws.amazon.com/systems-manager/parameters/?region=us-east-1&tab=Table
AWS Systems Manager > Parameter Store
My parameters
Public parameters
Settings
View details
Edit
Delete
Create parameter
Search

5)Create notification for sns(simple notification service) slack



complete a registration process with a regulatory body before September 30, 2022. If you currently have a toll-free number you must register your toll-free number by September 30, 2022 or you will no longer be able to use the toll-free number. Learn more

Amazon SNS > Topics > vprofile-pipeline-notification123 > Subscription: e72e271c-3882-46eb-889b-d438579470d1

Subscription: e72e271c-3882-46eb-889b-d438579470d1

Details

ARN
arn:aws:sns:us-east-1:082771140897:vprofile-pipeline-notification123:e72e271c-3882-46eb-889b-d438579470d1

Endpoint
r170517@rguktrkv.ac.in

Topic
vprofile-pipeline-notification123

Subscription Principal
arn:aws:iam::082771140897:user/itadmin

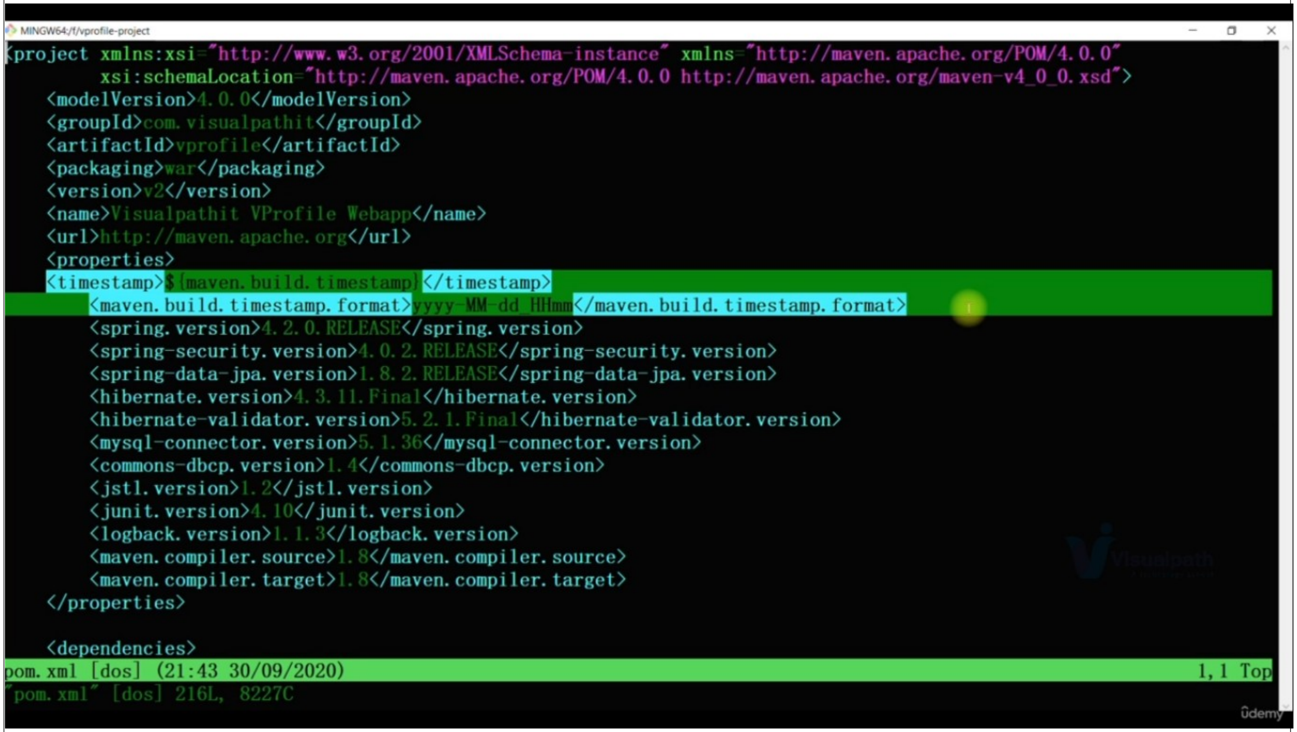
Status
Confirmed

Protocol
EMAIL

us-east-1.console.aws.amazon.com/sns/v3/home?region=us-east-1#/subscription/arn:aws:sns:us-east-1:082771140897:vprofile-pipeline-notification123:e72e271c-...
Amazon SNS
Dashboard
Topics
Subscriptions
Mobile
Push notifications
Text messaging (SMS)
Origination numbers
Edit
Delete

6 Build project

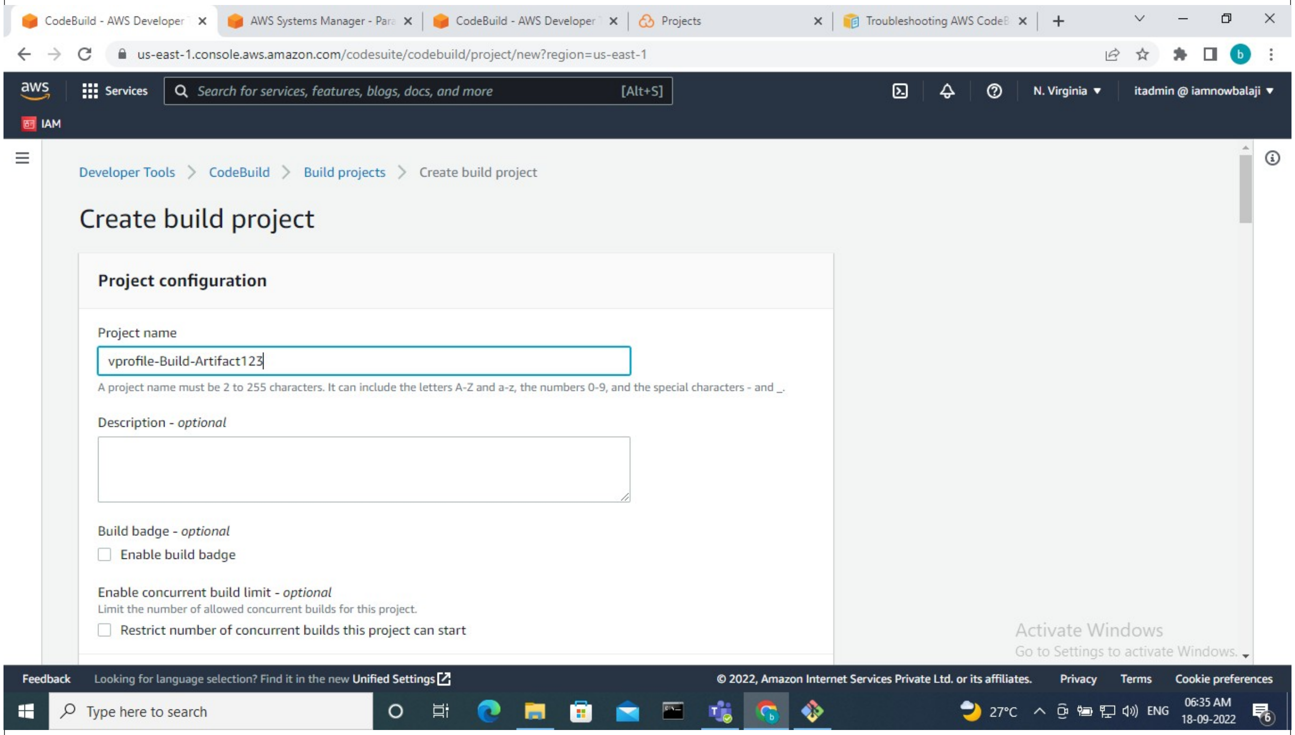
6.1 Update pom.xml with artifact version with timestamp



```
<project xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://maven.apache.org/POM/4.0.0"
        xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-v4_0_0.xsd">
    <modelVersion>4.0.0</modelVersion>
    <groupId>com.visualpathit</groupId>
    <artifactId>vprofile</artifactId>
    <packaging>war</packaging>
    <version>v2</version>
    <name>Visualpathit VProfile Webapp</name>
    <url>http://maven.apache.org</url>
    <properties>
    <timestamp>${maven.build.timestamp}</timestamp>
        <maven.build.timestamp.format>yyyy-MM-dd_HHmm</maven.build.timestamp.format>
        <spring.version>4.2.0.RELEASE</spring.version>
        <spring-security.version>4.0.2.RELEASE</spring-security.version>
        <spring-data-jpa.version>1.8.2.RELEASE</spring-data-jpa.version>
        <hibernate.version>4.3.11.Final</hibernate.version>
        <hibernate-validator.version>5.2.1.Final</hibernate-validator.version>
        <mysql-connector.version>5.1.36</mysql-connector.version>
        <commons-dbcp.version>1.4</commons-dbcp.version>
        <jstl.version>1.2</jstl.version>
        <junit.version>4.10</junit.version>
        <logback.version>1.1.3</logback.version>
        <maven.compiler.source>1.8</maven.compiler.source>
        <maven.compiler.target>1.8</maven.compiler.target>
    </properties>

    <dependencies>
pom.xml [dos] (21:43 30/09/2020)                                                    1,1 Top
"pom.xml" [dos] 216L, 8227C
```

6.2Create build project


CodeBuild - AWS Developer
AWS Systems Manager - Para
CodeBuild - AWS Developer
Projects
Troubleshooting AWS CodeB
us-east-1.console.aws.amazon.com/codesuite/codebuild/project/new?region=us-east-1
Services
Search for services, features, blogs, docs, and more [Alt+S]
N. Virginia
itadmin @ iamnowbalaji
IAM

Developer Tools > CodeBuild > Build projects > Create build project

Create build project

Project configuration

Project name

vprofile-Build-Artifact123

A project name must be 2 to 255 characters. It can include the letters A-Z and a-z, the numbers 0-9, and the special characters - and _.

Description - *optional*

Build badge - *optional*

□ Enable build badge

Enable concurrent build limit - *optional*

Limit the number of allowed concurrent builds for this project.

□ Restrict number of concurrent builds this project can start

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Go to Settings to activate Windows.
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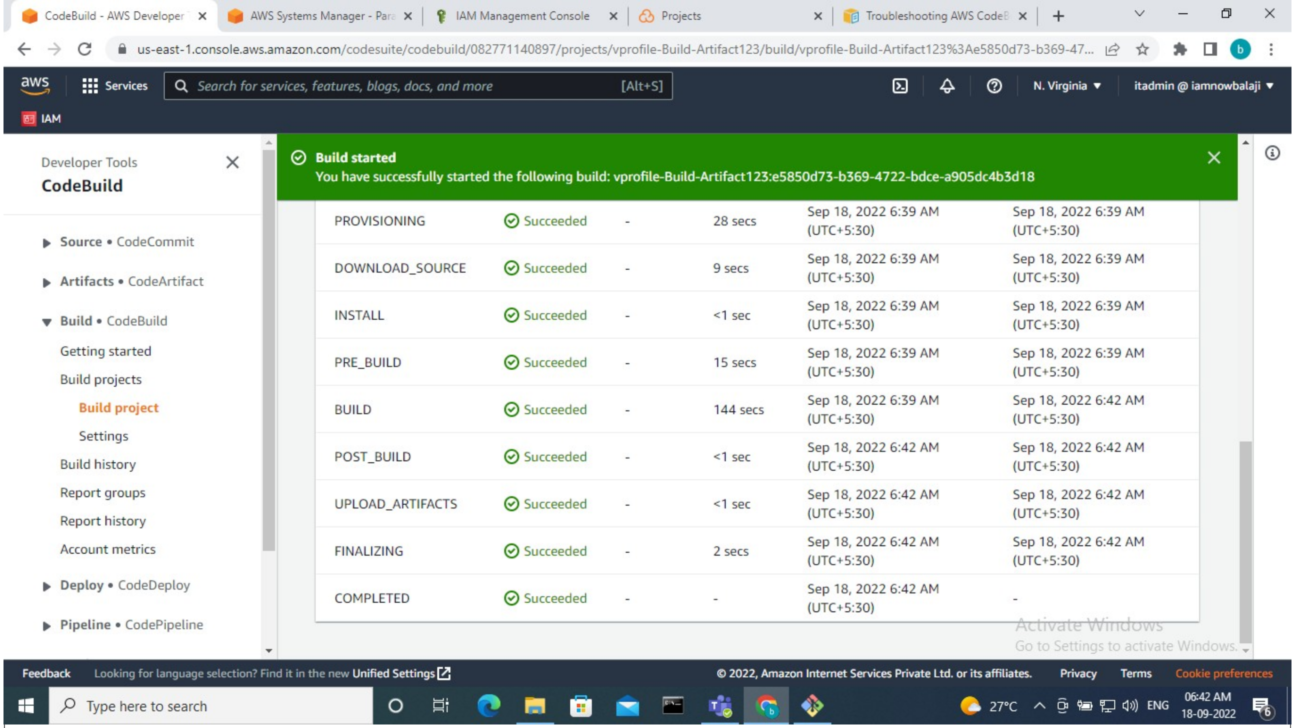
Terms
Cookie preferences
Type here to search
27°C
ENG
06:35 AM
18-09-2022



Build started

You have successfully started the following build: vprofile-Build-Artifact123:e5850d73-b369-4722-bdce-a905dc4b3d18

PROVISIONING	✓ Succeeded	-	28 secs	Sep 18, 2022 6:39 AM (UTC+5:30)	Sep 18, 2022 6:39 AM (UTC+5:30)
DOWNLOAD_SOURCE	✓ Succeeded	-	9 secs	Sep 18, 2022 6:39 AM (UTC+5:30)	Sep 18, 2022 6:39 AM (UTC+5:30)
INSTALL	✓ Succeeded	-	<1 sec	Sep 18, 2022 6:39 AM (UTC+5:30)	Sep 18, 2022 6:39 AM (UTC+5:30)
PRE_BUILD	✓ Succeeded	-	15 secs	Sep 18, 2022 6:39 AM (UTC+5:30)	Sep 18, 2022 6:39 AM (UTC+5:30)
BUILD	✓ Succeeded	-	144 secs	Sep 18, 2022 6:39 AM (UTC+5:30)	Sep 18, 2022 6:42 AM (UTC+5:30)
POST_BUILD	✓ Succeeded	-	<1 sec	Sep 18, 2022 6:42 AM (UTC+5:30)	Sep 18, 2022 6:42 AM (UTC+5:30)
UPLOAD_ARTIFACTS	✓ Succeeded	-	<1 sec	Sep 18, 2022 6:42 AM (UTC+5:30)	Sep 18, 2022 6:42 AM (UTC+5:30)
FINALIZING	✓ Succeeded	-	2 secs	Sep 18, 2022 6:42 AM (UTC+5:30)	Sep 18, 2022 6:42 AM (UTC+5:30)
COMPLETED	✓ Succeeded	-	-	Sep 18, 2022 6:42 AM (UTC+5:30)	-

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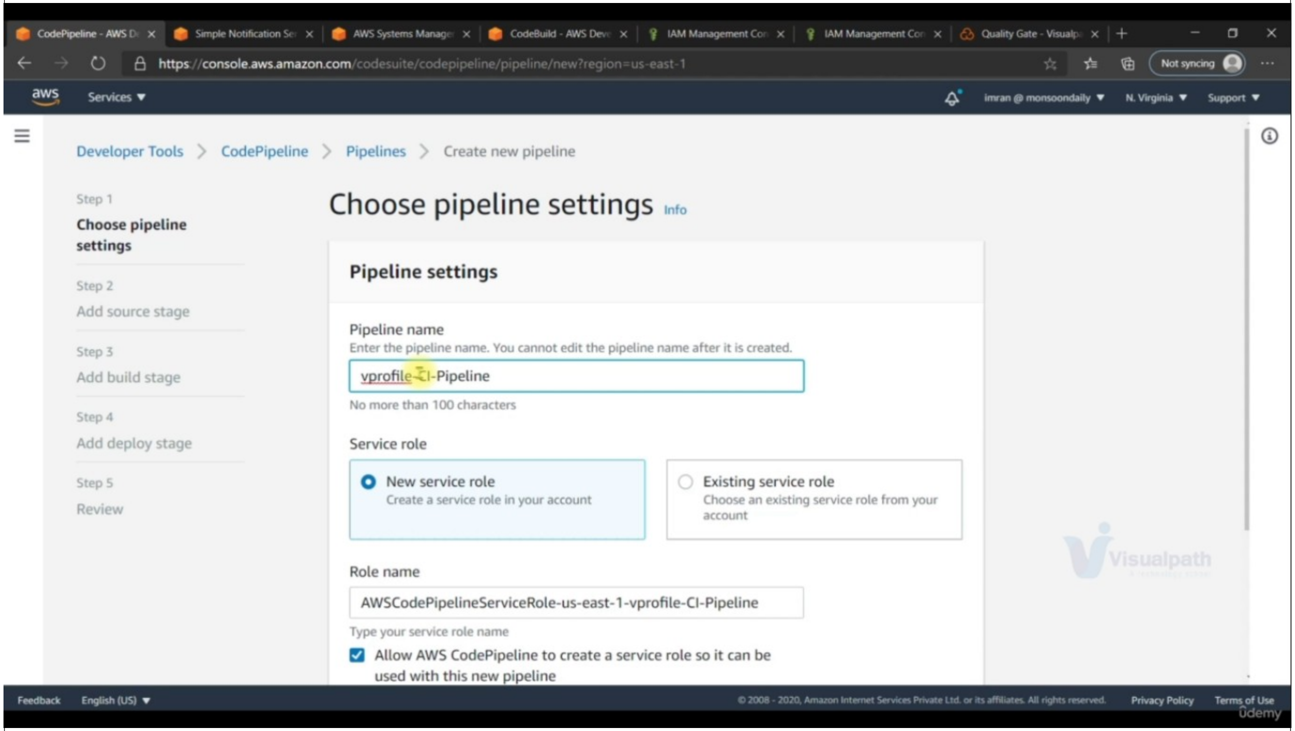
Type here to search
27°C
ENG
06:42 AM
18-09-2022

7 Create pipeline



Choose pipeline settings Info

Pipeline settings

Pipeline name

Enter the pipeline name. You cannot edit the pipeline name after it is created.

vprofile-CI-Pipeline

No more than 100 characters

Service role

● New service role
Create a service role in your account

○ Existing service role
Choose an existing service role from your account

Role name

AWSCodePipelineServiceRole-us-east-1-vprofile-CI-Pipeline

Type your service role name

☑ Allow AWS CodePipeline to create a service role so it can be used with this new pipeline

Visualpath
Feedback
English (US)
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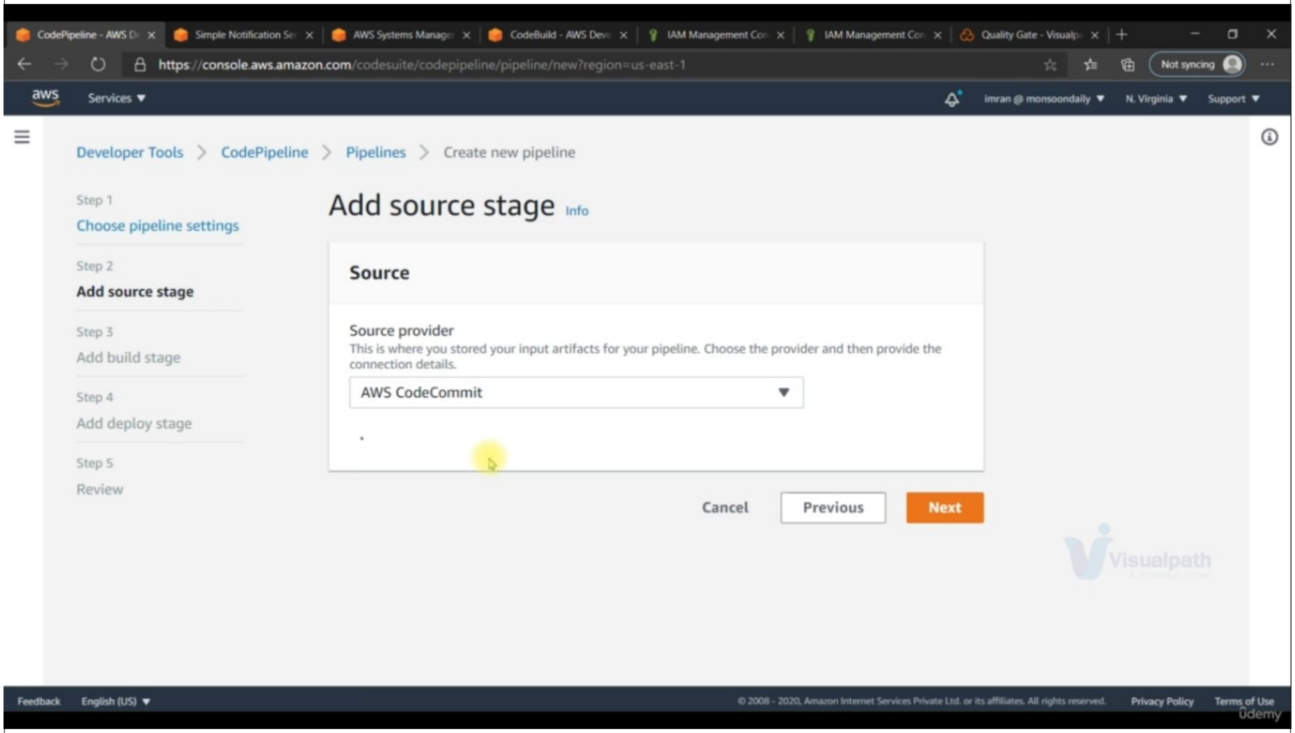
7.1 code-commit



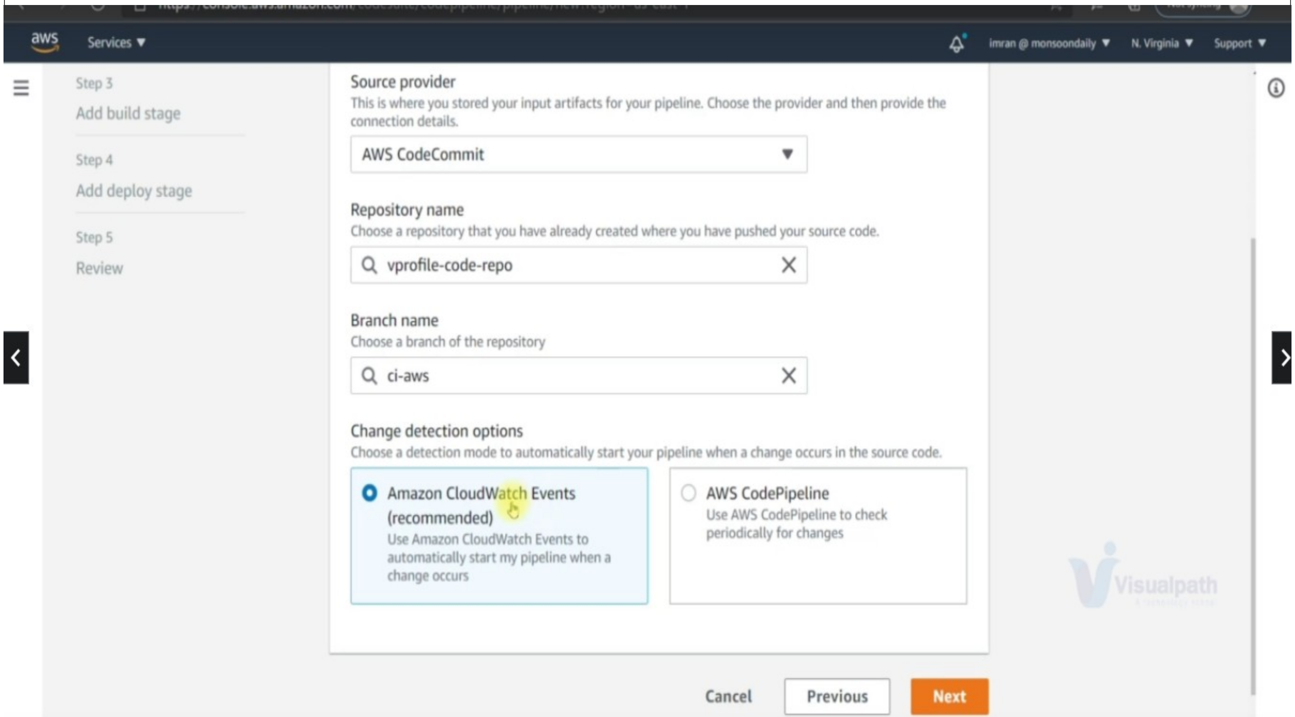
Developer Tools > CodePipeline > Pipelines > Create new pipeline

Step 1 Choose pipeline settings
Step 2 Add source stage
Step 3 Add build stage
Step 4 Add deploy stage
Step 5 Review

Add source stage

Source

Source provider
This is where you stored your input artifacts for your pipeline. Choose the provider and then provide the connection details.
AWS CodeCommit



Source provider
This is where you stored your input artifacts for your pipeline. Choose the provider and then provide the connection details.
AWS CodeCommit

Repository name
Choose a repository that you have already created where you have pushed your source code.
vprofile-code-repo

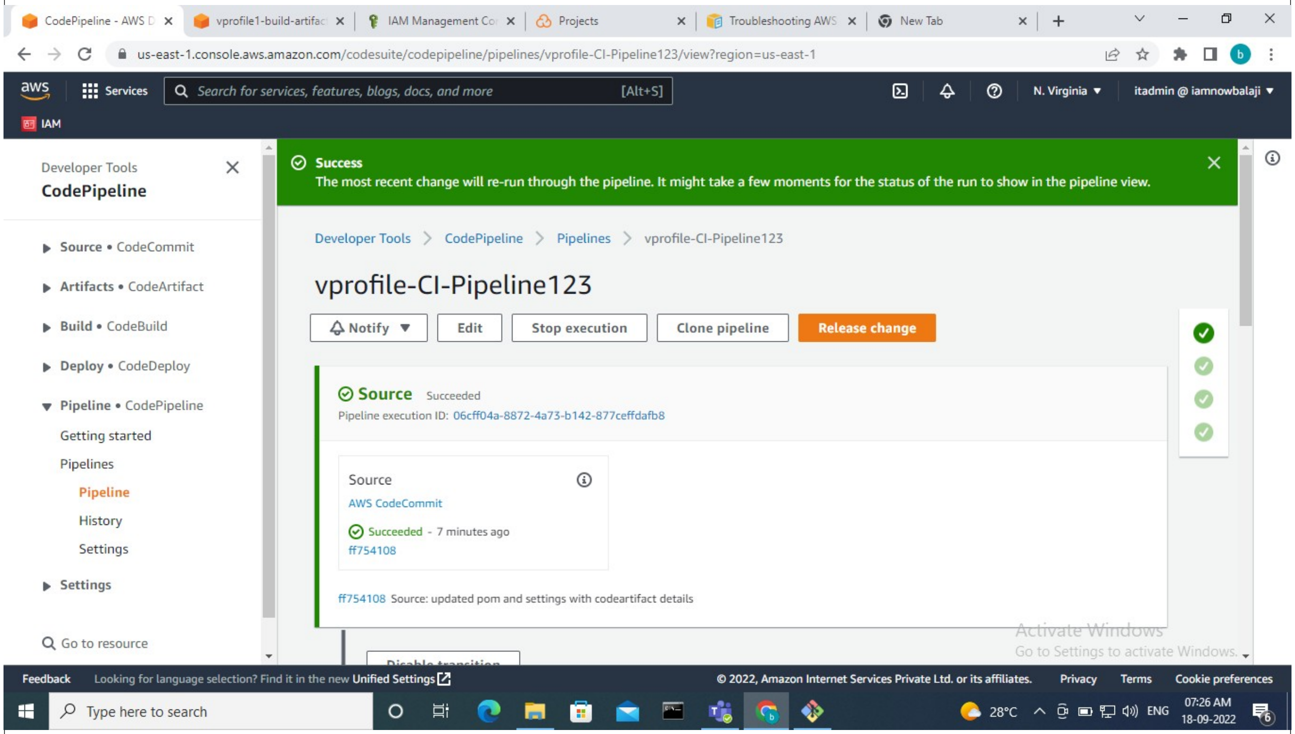
Branch name
Choose a branch of the repository
ci-aws

Change detection options
Choose a detection mode to automatically start your pipeline when a change occurs in the source code.

● Amazon CloudWatch Events (recommended)
Use Amazon CloudWatch Events to automatically start my pipeline when a change occurs

○ AWS CodePipeline
Use AWS CodePipeline to check periodically for changes

7.2 Fetch the Source Code



Success
The most recent change will re-run through the pipeline. It might take a few moments for the status of the run to show in the pipeline view.

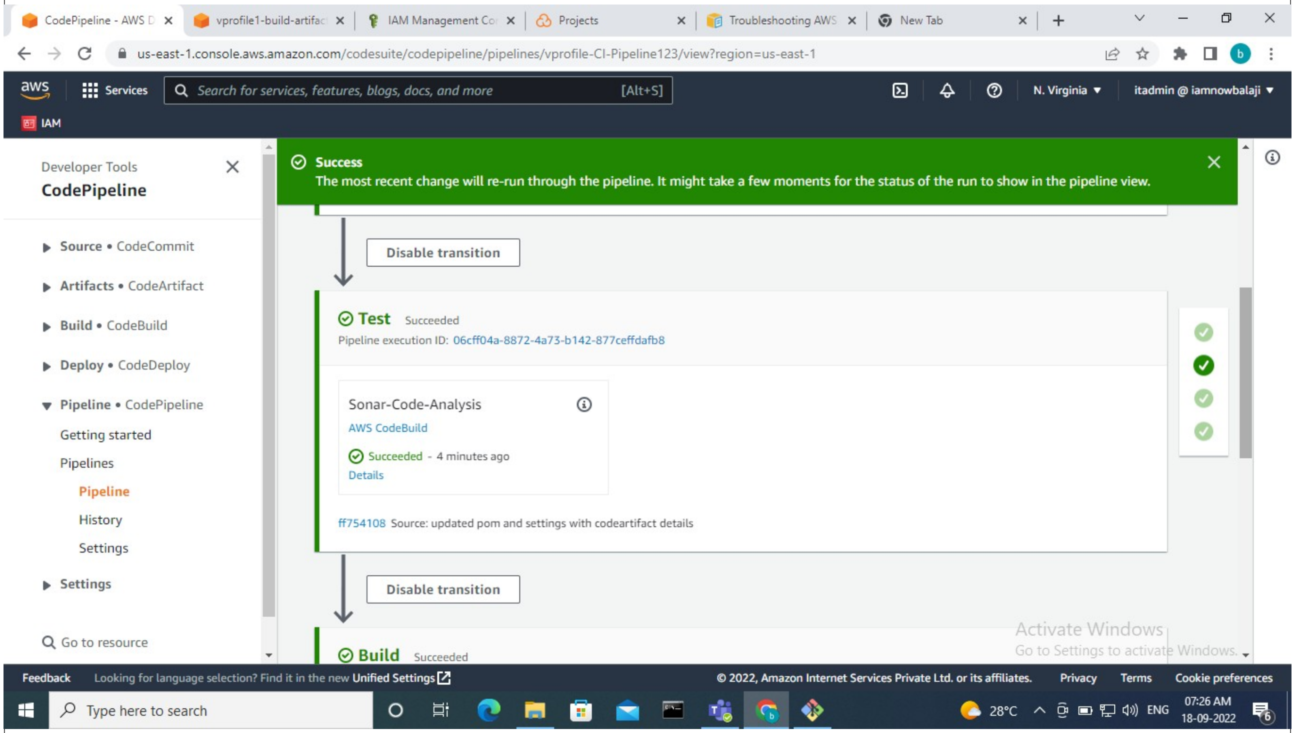
vprofile-CI-Pipeline123

Source Succeeded
Pipeline execution ID: 06cff04a-8872-4a73-b142-877ceffdafb8

Source
AWS CodeCommit
Succeeded - 7 minutes ago
ff754108

ff754108 Source: updated pom and settings with codeartifact details

7.3 Test-code



Success
The most recent change will re-run through the pipeline. It might take a few moments for the status of the run to show in the pipeline view.

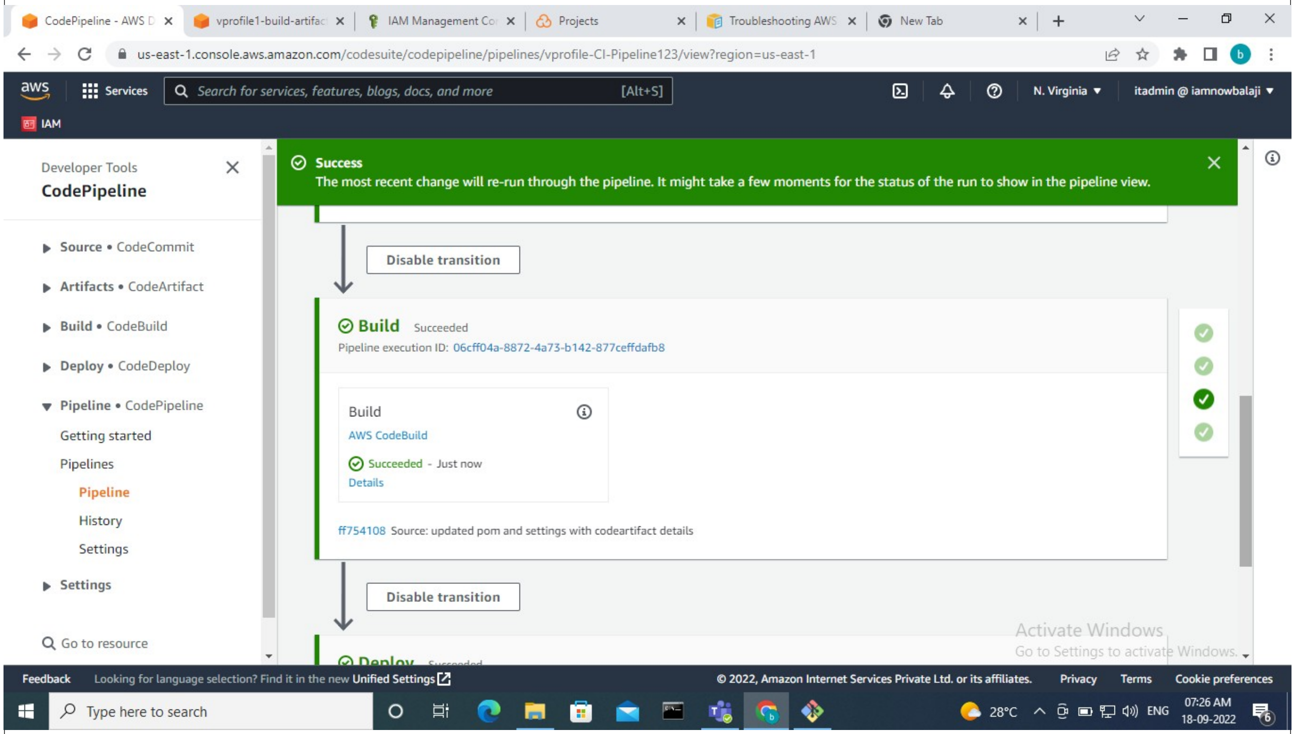
Test Succeeded
Pipeline execution ID: 06cff04a-8872-4a73-b142-877ceffdafb8

Sonar-Code-Analysis
AWS CodeBuild
Succeeded - 4 minutes ago
Details

ff754108 Source: updated pom and settings with codeartifact details

Build Succeeded

7.4 Build



Success
The most recent change will re-run through the pipeline. It might take a few moments for the status of the run to show in the pipeline view.

Build Succeeded
Pipeline execution ID: 06cff04a-8872-4a73-b142-877ceffdafb8

Build
AWS CodeBuild
Succeeded - Just now
Details

ff754108 Source: updated pom and settings with codeartifact details

Deploy Succeeded

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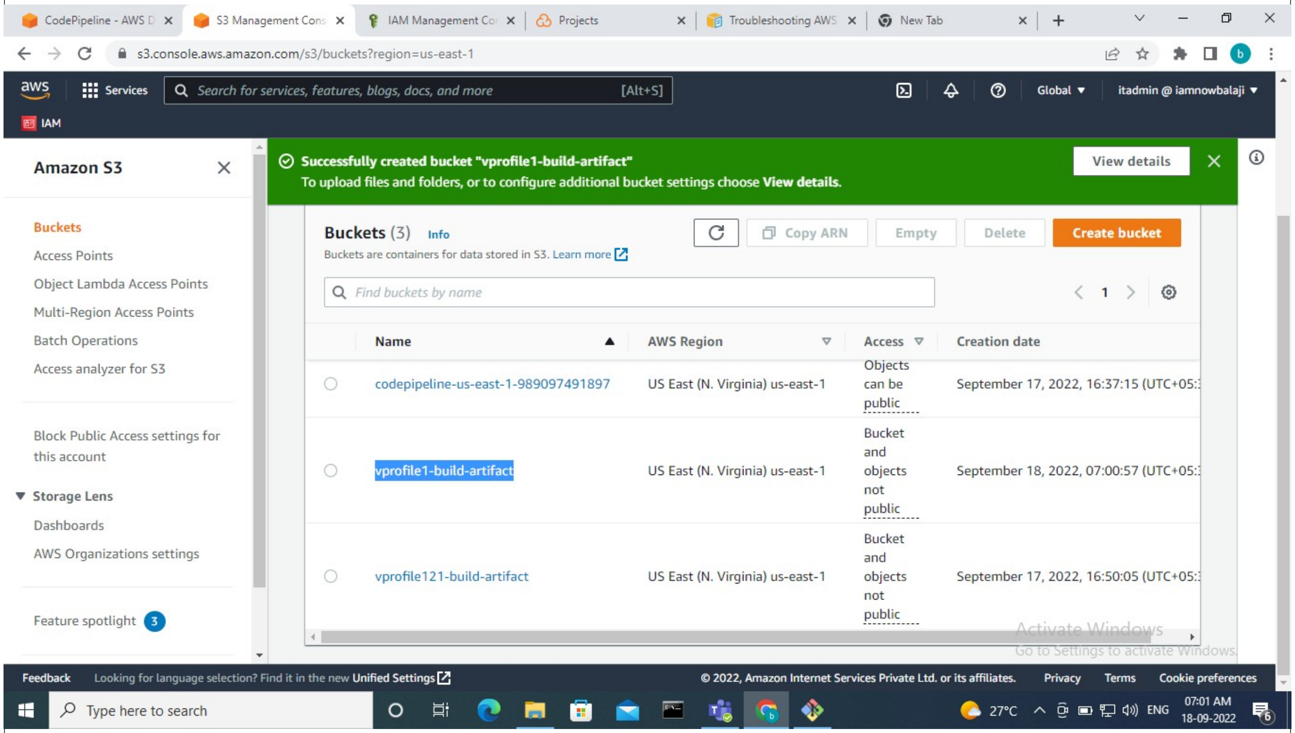
7.5 Create S3 bucket



Successfully created bucket "vprofile1-build-artifact"
To upload files and folders, or to configure additional bucket settings choose View details.

Buckets (3) Info
Buckets are containers for data stored in S3. Learn more

	Name	AWS Region	Access	Creation date
○	codepipeline-us-east-1-989097491897	US East (N. Virginia) us-east-1	Objects can be public	September 17, 2022, 16:37:15 (UTC+05:
○	vprofile1-build-artifact	US East (N. Virginia) us-east-1	Bucket and objects not public	September 18, 2022, 07:00:57 (UTC+05:
○	vprofile121-build-artifact	US East (N. Virginia) us-east-1	Bucket and objects not public	September 17, 2022, 16:50:05 (UTC+05:

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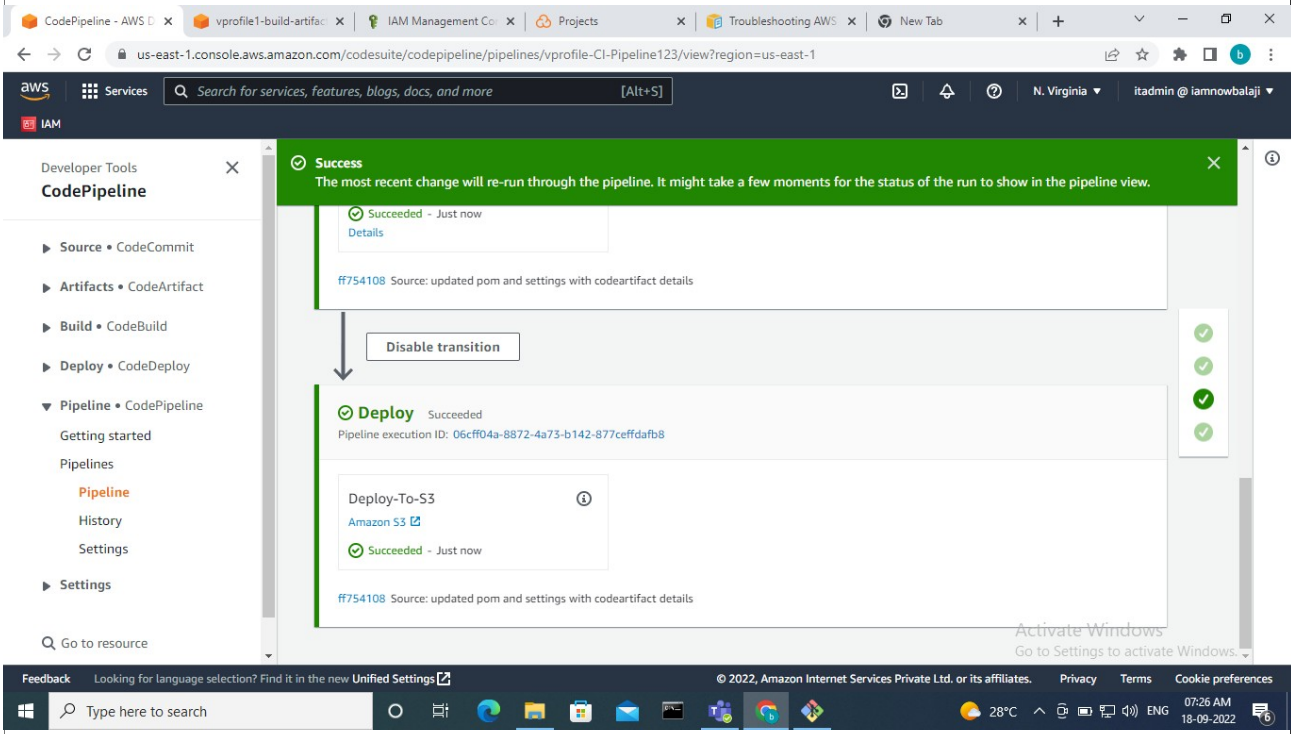
7.6 Deploy-to-S3-Bucket



Success
The most recent change will re-run through the pipeline. It might take a few moments for the status of the run to show in the pipeline view.

Succeeded - Just now
Details

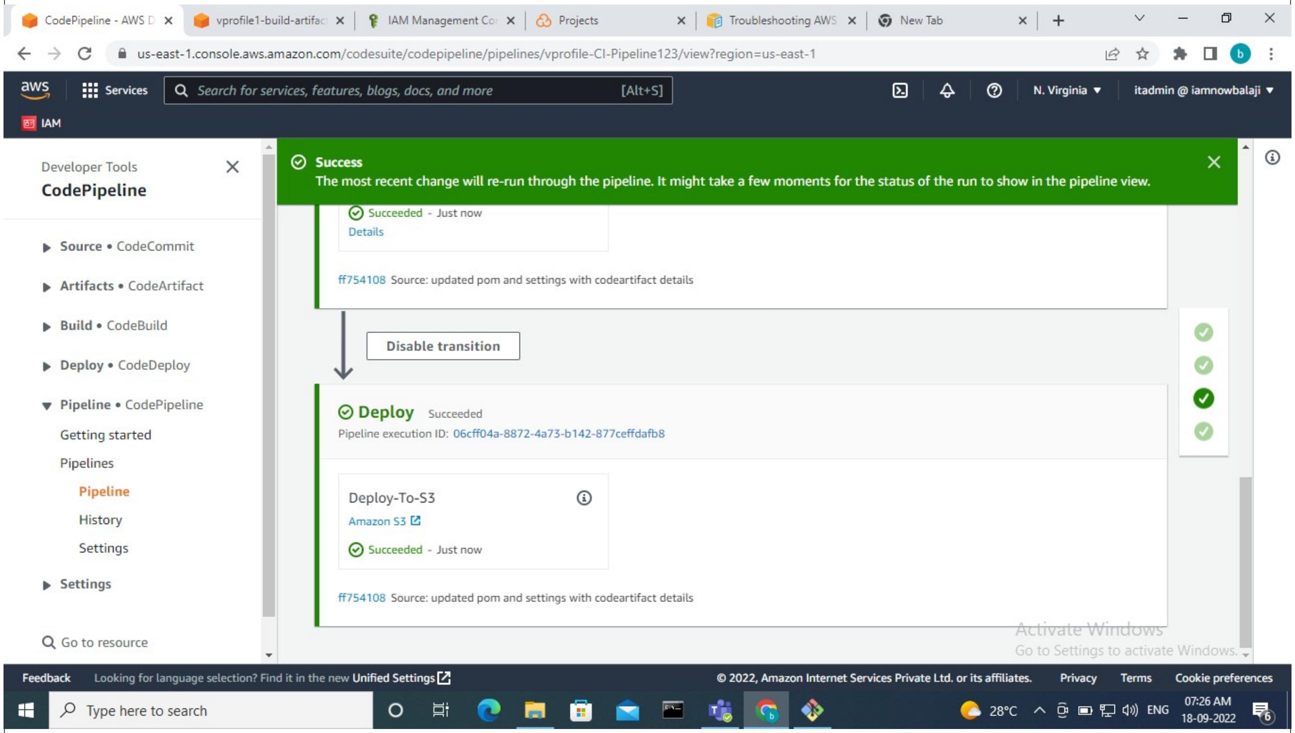
ff754108 Source: updated pom and settings with codeartifact details

Deploy Succeeded
Pipeline execution ID: 06cff04a-8872-4a73-b142-877ceffdafb8

Deploy-To-S3
Amazon S3
Succeeded - Just now

ff754108 Source: updated pom and settings with codeartifact details

8.Test Pipeline



Success
The most recent change will re-run through the pipeline. It might take a few moments for the status of the run to show in the pipeline view.

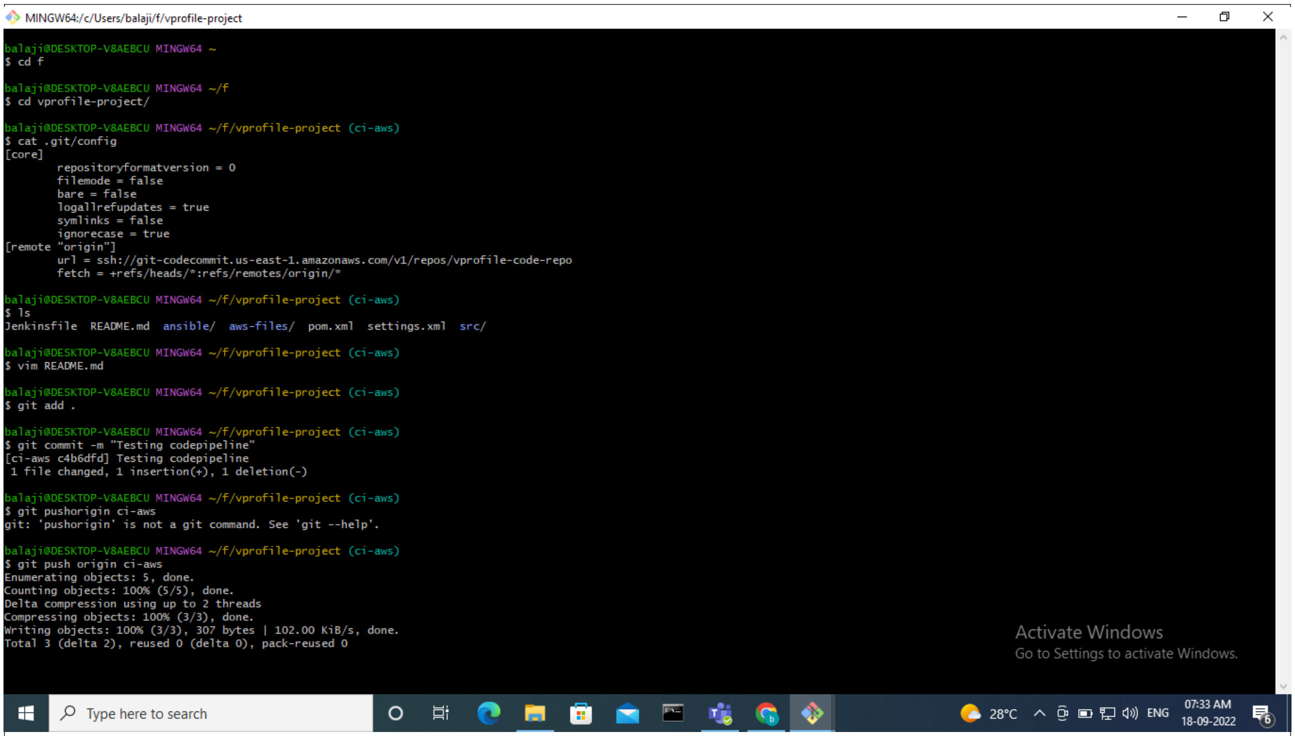
Succeeded - Just now
Details

ff754108 Source: updated pom and settings with codeartifact details

Deploy Succeeded
Pipeline execution ID: 06cff04a-8872-4a73-b142-877ceffdafb8

Deploy-To-S3
Amazon S3
Succeeded - Just now

ff754108 Source: updated pom and settings with codeartifact details



```
balaji@DESKTOP-V8AEBCU MINGW64 ~
$ cd f

balaji@DESKTOP-V8AEBCU MINGW64 ~/f
$ cd vprofile-project/

balaji@DESKTOP-V8AEBCU MINGW64 ~/f/vprofile-project (ci-aws)
$ cat .git/config
[core]
        repositoryformatversion = 0
        filemode = false
        bare = false
        logallrefupdates = true
        symlinks = false
        ignorecase = true
[remote "origin"]
        url = ssh://git-codecommit.us-east-1.amazonaws.com/v1/repos/vprofile-code-repo
        fetch = +refs/heads/*:refs/remotes/origin/*

balaji@DESKTOP-V8AEBCU MINGW64 ~/f/vprofile-project (ci-aws)
$ ls
Jenkinsfile  README.md  ansible/  aws-files/  pom.xml  settings.xml  src/

balaji@DESKTOP-V8AEBCU MINGW64 ~/f/vprofile-project (ci-aws)
$ vim README.md

balaji@DESKTOP-V8AEBCU MINGW64 ~/f/vprofile-project (ci-aws)
$ git add .

balaji@DESKTOP-V8AEBCU MINGW64 ~/f/vprofile-project (ci-aws)
$ git commit -m "Testing codepipeline"
[ci-aws c4b6dfd] Testing codepipeline
 1 file changed, 1 insertion(+), 1 deletion(-)

balaji@DESKTOP-V8AEBCU MINGW64 ~/f/vprofile-project (ci-aws)
$ git pushorigin ci-aws
git: 'pushorigin' is not a git command. See 'git --help'.

balaji@DESKTOP-V8AEBCU MINGW64 ~/f/vprofile-project (ci-aws)
$ git push origin ci-aws
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 2 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 307 bytes | 102.00 KiB/s, done.
Total 3 (delta 2), reused 0 (delta 0), pack-reused 0
```

output

If pipeline will run with out error then we will get status of the project as success. If any error occurs in pipeline then it will fail. Always user get the status of their every code commit.

Conclusion

By developing CI-pipeline in AWS cloud we conclude that it reduce the time effort, cost effort, dependency on release and build team. It makes the developers work easier.

References

1)https://www.google.com/search?channel=fs&client=ubuntu&q=stack+overflow

2)https://www.google.com

3)https://www.google.com/search?channel=fs&client=ubuntu&q=udemy

4)https://www.youtube.com