1. **[**ec2-user ~]$ sudo yum update –y
2. Add the Jenkins repo using the following command:
3. **[**ec2-user ~]$ sudo wget -O /etc/yum.repos.d/jenkins.repo \

https://pkg.jenkins.io/redhat-stable/jenkins.repo

1. Import a key file from Jenkins-CI to enable installation from the package:

**[**ec2-user ~]$ sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io-2023.key

**[**ec2-user ~]$ sudo yum upgrade

1. Install Java (Amazon Linux 2023):

**[**ec2-user ~]$ sudo dnf install java-17-amazon-corretto -y

1. Install Jenkins:

**[**ec2-user ~]$ sudo yum install jenkins -y

[root@ip-10-0-29-163 ~]# systemctl enable jenkins

Created symlink /etc/systemd/system/multi-user.target.wants/jenkins.service → /usr/lib/systemd/system/jenkins.service.

[root@ip-10-0-29-163 ~]# systemctl start jenkins

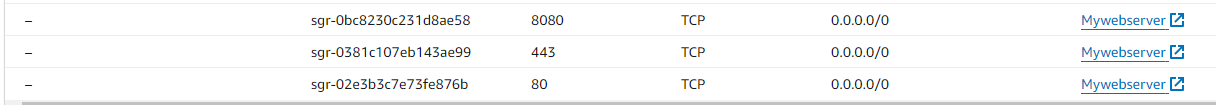
[root@ip-10-0-29-163 ~]# jenkins --version

2.426.2

[root@ip-10-0-29-163 ~]# cat /var/lib/jenkins/secrets/initialAdminPassword

cd09c51f67c1487da2997c8016fee388

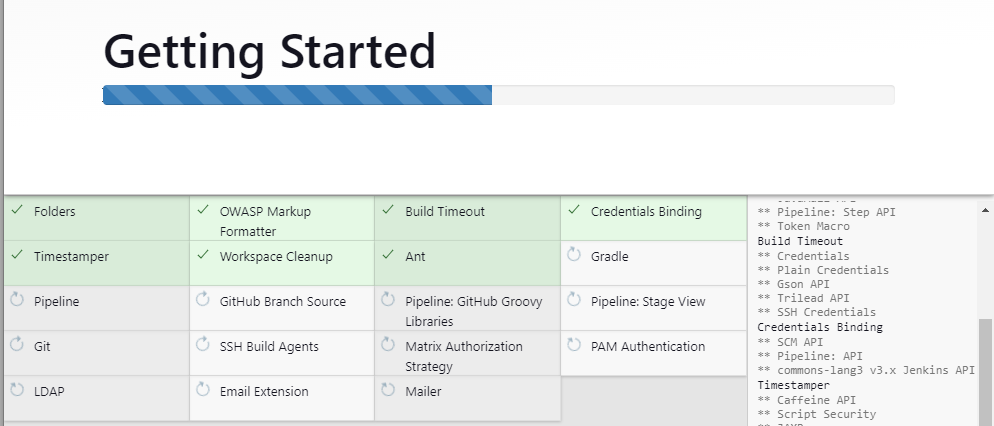
[root@ip-10-0-29-163 ~]#



<http://3.143.147.122:8080/>

Jenkins

jenkins



Integrate Maven to Jenkins and add Github credentials to Jenkins

Git credential personal access token for jenkins

ghp\_mgwUP7SZFSWIqFMy6qn8dCAe2WlJx427nBdi

ghp\_FAD1ZckvYaXaDxK4DCzmWzfWshAgQV33V8ti

create pipeline script for build and test artifacts and create CI job on Jenkins

PS C:\Users\shrijandra\EKS> cd '.\CICD Argo\'

PS C:\Users\shrijandra\EKS\CICD Argo> git add .

fatal: not a git repository (or any of the parent directories): .git

PS C:\Users\shrijandra\EKS\CICD Argo>git init

PS C:\Users\shrijandra\EKS\CICD Argo> git add .

PS C:\Users\shrijandra\EKS\CICD Argo> git commit -m "added jenkinsfile"

PS C:\Users\shrijandra\EKS\CICD Argo> git checkout -b shrijandra/web-app

Switched to a new branch 'shrijandra/web-app'

PS C:\Users\shrijandra\EKS\CICD Argo> git branch -a

master

\* shrijandra/web-app

PS C:\Users\shrijandra\EKS\CICD Argo> git push https://github.com/shrijandra/web-app.git

fatal: unable to access 'https://github.com/shrijandra/web-app.git/': OpenSSL SSL\_connect: Connection was reset in connection to github.com:443

PS C:\Users\shrijandra\EKS\CICD Argo> git config --global --unset-all remote.origin.proxy

PS C:\Users\shrijandra\EKS\CICD Argo> git push https://github.com/shrijandra/web-app.git

Enumerating objects: 25, done.

Counting objects: 100% (25/25), done.

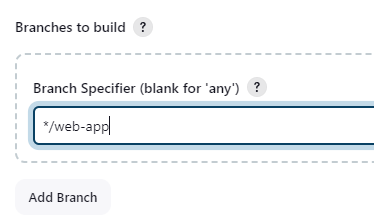
PS C:\Users\shrijandra\EKS\CICD Argo> git config --global user.name

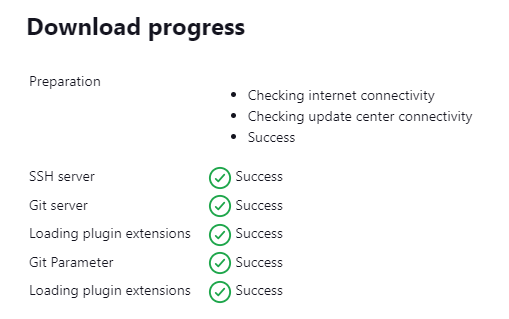
shrijandra

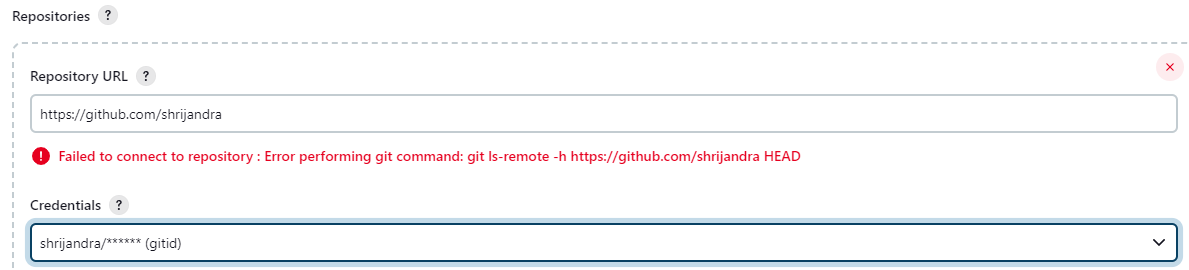
PS C:\Users\shrijandra\EKS\CICD Argo> git config --global user.email

shrijandra@yahoo.com

PS C:\Users\shrijandra\EKS\CICD Argo>







In console output

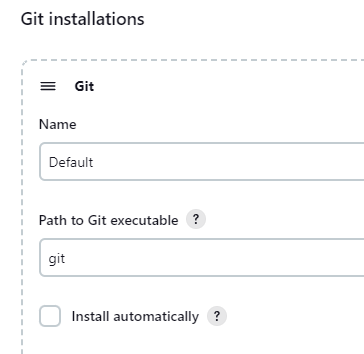
java.io.IOException: Cannot run program "git" (in directory "/var/lib/jenkins/caches/git-f5476d591911f224c882665611560dc9"): error=2, No such file or directory



***[root@ip-10-0-29-163 ~]# yum install git -y***

Last metadata expiration check: 1:26:19 ago on Tue Dec 26 03:31:47 2023.

Dependencies resolved.





ERROR: /var/lib/jenkins/workspace/web-app@script/9b9e2a24fb8b77f9ebdd58dbef60ff37c76b09addb8291db67a570022597f18c/Jenkinsfile not found

***File name change from jenkins to Jenkins resolved the above issue.***

The file name in Git was updated manually causing below error while pushing from local PC.

PS C:\Users\shrijandra\EKS\CICD Argo> git push https://github.com/shrijandra/web-app.git

To https://github.com/shrijandra/web-app.git

! [rejected] shrijandra/web-app -> shrijandra/web-app (fetch first)

error: failed to push some refs to 'https://github.com/shrijandra/web-app.git'

hint: Updates were rejected because the remote contains work that you do

hint: not have locally. This is usually caused by another repository pushing

hint: to the same ref. You may want to first integrate the remote changes

hint: (e.g., 'git pull ...') before pushing again.

hint: See the 'Note about fast-forwards' in 'git push --help' for details.

PS C:\Users\shrijandra\EKS\CICD Argo> git add .

PS C:\Users\shrijandra\EKS\CICD Argo> git commit -m 'syntax error fixed dfd'

On branch shrijandra/web-app

nothing to commit, working tree clean

so use git push -f origin master //force push

+ mvn clean package

/var/lib/jenkins/workspace/web-app@tmp/durable-42f38b61/script.sh: line 1: mvn: command not found

***sudo yum install maven -y***

[root@ip-10-0-29-163 ~]# mvn --version

Apache Maven 3.8.4 (Red Hat 3.8.4-3.amzn2023.0.4)

Maven home: /usr/share/maven

Java version: 17.0.8.1, vendor: Amazon.com Inc., runtime: /usr/lib/jvm/java-17-amazon-corretto.x86\_64

Default locale: en, platform encoding: UTF-8

OS name: "linux", version: "6.1.49-70.116.amzn2023.x86\_64", arch: "amd64", family: "unix"

[root@ip-10-0-29-163 ~]#

[ERROR] The goal you specified requires a project to execute but there is no POM in this directory (/var/lib/jenkins/workspace/web-app).

After having application with POM file still the same error.

[ERROR] The goal you specified requires a project to execute but there is no POM in this directory (/var/lib/jenkins/workspace/web-app). Please verify you invoked Maven from the correct directory. -> [Help 1]

Again the same error

[root@ip-10-0-29-163 ~]# mvn -e

[INFO] Error stacktraces are turned on.

[INFO] Scanning for projects...

[INFO] ------------------------------------------------------------------------

[INFO] BUILD FAILURE

[INFO] ------------------------------------------------------------------------

[INFO] Total time: 0.163 s

[INFO] Finished at: 2023-12-26T06:53:11Z

[ERROR] No goals have been specified for this build. You must specify a valid lifecycle phase or a goal in the format <plugin-prefix>:<goal> or <plugin-group-id>:<plugin-artifact-id>[:<plugin-version>]:<goal>. Available lifecycle phases are: validate, initialize, generate-sources, process-sources, generate-resources, process-resources, compile, process-classes, generate-test-sources, process-test-sources, generate-test-resources, process-test-resources, test-compile, process-test-classes, test, prepare-package, package, pre-integration-test, integration-test, post-integration-test, verify, install, deploy, pre-clean, clean, post-clean, pre-site, site, post-site, site-deploy. -> [Help 1]

org.apache.maven.lifecycle.NoGoalSpecifiedException: No goals have been specified for this build. You must specify a valid lifecycle phase or a goal in the format <plugin-prefix>:<goal> or <plugin-group-id>:<plugin-artifact-id>[:<plugin-version>]:<goal>. Available lifecycle phases are: validate, initialize, generate-sources, process-sources, generate-resources, process-resources, compile, process-classes, generate-test-sources, process-test-sources, generate-test-resources, process-test-resources, test-compile, process-test-classes, test, prepare-package, package, pre-integration-test, integration-test, post-integration-test, verify, install, deploy, pre-clean, clean, post-clean, pre-site, site, post-site, site-deploy.

<https://plugins.jenkins.io/pipeline-maven/>

12/26/2023

[ERROR] The goal you specified requires a project to execute but there is no POM in this directory (/var/lib/jenkins/workspace/web-app).

The below command clean up the workspace which is the reason no file inside (/var/lib/jenkins/workspace/web-app

[root@ip-10-0-29-163 ~]# cd /var/lib/jenkins/workspace/web-app

[root@ip-10-0-29-163 web-app]# ls

[root@ip-10-0-29-163 web-app]# ls -l

total 0

[root@ip-10-0-29-163 web-app]#

 stages {

        stage("clone code"){

            steps{

                git branch: 'shrijandra/web-app', credentialsId: 'gitid', url: 'https://github.com/shrijandra/web-app.git'

            }

        }

        stage("Cleanup Workspace"){

            steps {

                cleanWs()

              }

        }

Console output

[Pipeline] cleanWs

[WS-CLEANUP] Deleting project workspace...

[WS-CLEANUP] Deferred wipeout is used...

[WS-CLEANUP] done

[Pipeline] }

Defining tools as maven or use environment.

 environment {

        PATH = "/usr/bin:$PATH"

    }

OR

pipeline {

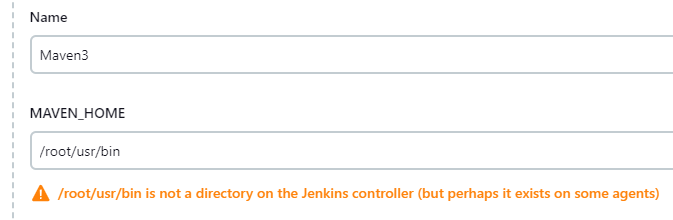
agent any

tools {

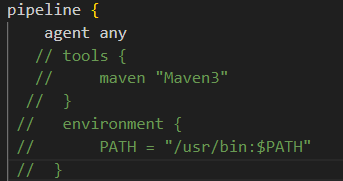
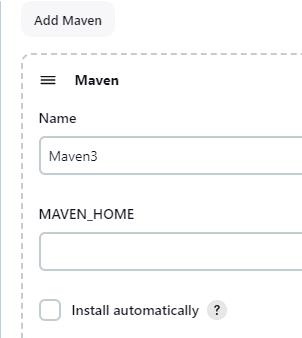
maven "Maven3"

}

And check the Manage Jenkins – tools – Maven as below



Also working successfully without adding tools and environment

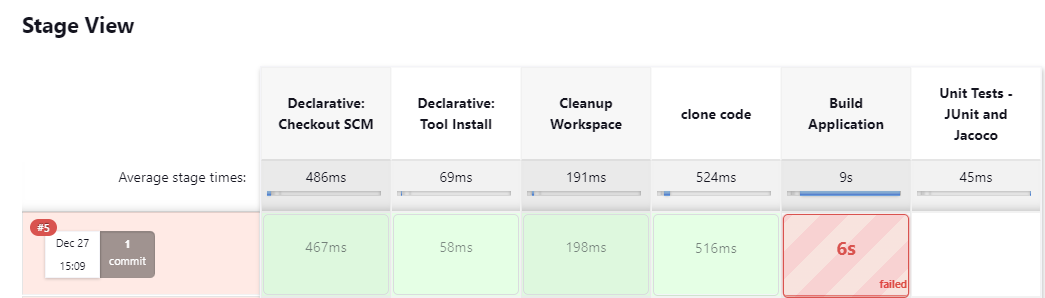


[root@ip-10-0-29-163 workspace]# cd devops

[root@ip-10-0-29-163 devops]# ls

Jenkinsfile cicd.docx pom.xml src target '~$cicd.docx'

[root@ip-10-0-29-163 devops]#



[ERROR] Failed to execute goal org.apache.maven.plugins:maven-compiler-plugin:3.1:compile (default-compile) on project simple-web-app: Compilation failure: Compilation failure:

[ERROR] /var/lib/jenkins/workspace/devops/src/main/java/org/mitre/web/HomeController.java:[24,24] package javax.annotation does not exist

[ERROR] /var/lib/jenkins/workspace/devops/src/main/java/org/mitre/web/HomeController.java:[49,10] cannot find symbol

[ERROR] symbol: class Resource

[ERROR] location: class org.mitre.web.HomeController

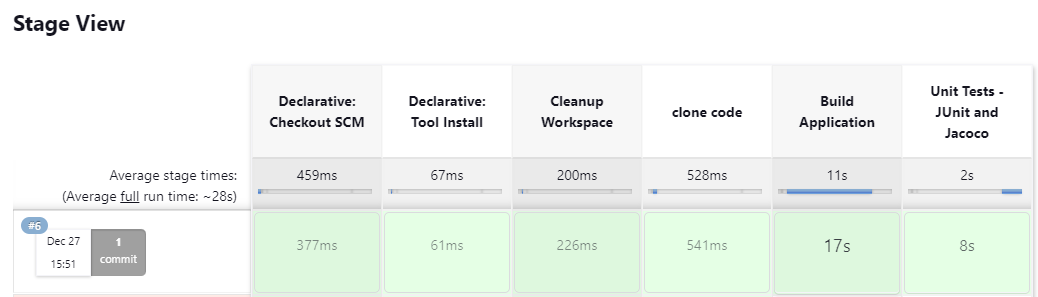
Changing another sample POM file Source code: https://github.com/ajautomation/PassParametersRunTimeViaMVN

Other Maven project explaining POM.xml file: https://www.youtube.com/watch?v=o2gAw929--g&t=681s

[root@ip-10-0-29-163 devops]# ls

Jenkinsfile cicd.docx pom.xml src target '~$cicd.docx'

Build completed and Unit test completed.



pipeline {

    agent any

    tools {

        maven "Maven3"

    }

  //  environment {

  //      PATH = "/usr/bin:$PATH"

  //  }

    stages {

        stage("Cleanup Workspace"){

            steps {

                cleanWs()

              }

        }

        stage("clone code"){

            steps{

                git branch: 'shrijandra/web-app', credentialsId: 'gitid', url: 'https://github.com/shrijandra/web-app.git'

            }

        }

        stage("Build Application"){

            steps {

                sh "mvn clean package"

            }

        }

        stage('Unit Tests - JUnit and Jacoco'){

           steps {

                sh "mvn test"

          }

        }

    }

}

These are the default life cycle phases in maven

* **validate** - validate the project is correct and all necessary information is available
* **compile** - compile the source code of the project
* **test** - test the compiled source code using a suitable unit testing framework. These tests should not require the code be packaged or deployed
* **package** - take the compiled code and package it in its distributable format, such as a JAR.
* **verify** - run any checks on results of integration tests to ensure quality criteria are met
* **install** - install the package into the local repository, for use as a dependency in other projects locally
* **deploy** - done in the build environment, copies the final package to the remote repository for sharing with other developers and projects.

ubuntu@ip-10-0-28-226:~$ sudo bash

root@ip-10-0-28-226:/home/ubuntu# wget -O - https://packages.adoptium.net/artifactory/api/gpg/key/public | tee /etc/apt/keyrings/adoptium.asc

--2023-12-29 13:04:27-- https://packages.adoptium.net/artifactory/api/gpg/key/public

Resolving packages.adoptium.net (packages.adoptium.net)... 146.75.79.42

Connecting to packages.adoptium.net (packages.adoptium.net)|146.75.79.42|:443... connected.

HTTP request sent, awaiting response... 200 OK

Length: 1793 (1.8K) [text/plain]

Saving to: ‘STDOUT’

root@ip-10-0-28-226:/home/ubuntu# echo "deb [signed-by=/etc/apt/keyrings/adoptium.asc] https://packages.adoptium.net/artifactory/deb $(awk -F= '/^VERSION\_CODENAME/{print$2}' /etc/os-release) main" | tee /etc/apt/sources.list.d/adoptium.list

deb [signed-by=/etc/apt/keyrings/adoptium.asc] https://packages.adoptium.net/artifactory/deb jammy main

root@ip-10-0-28-226:/home/ubuntu#

ubuntu@ip-10-0-28-226:~$ sudo vim /opt/sonarqube/conf/sonar.properties

ubuntu@ip-10-0-28-226:~$ sudo systemctl enable sonar

ubuntu@ip-10-0-28-226:~$ sudo systemctl start sonar

ubuntu@ip-10-0-28-226:~$ sudo systemctl status sonar

● sonar.service - SonarQube service

Loaded: loaded (/etc/systemd/system/sonar.service; enabled; vendor preset: enabled)

Active: active (running) since Fri 2023-12-29 13:30:15 UTC; 4s ago

Process: 14064 ExecStart=/opt/sonarqube/bin/linux-x86-64/sonar.sh start (code=exited, status=0/SUCCESS)

Main PID: 14093 (java)

Tasks: 40 (limit: 2329)

Memory: 675.6M

CPU: 4.821s

ubuntu@ip-10-0-28-226:~$ sudo tail -f /opt/sonarqube/logs/sonar.log

2023.12.29 13:31:19 INFO app[][o.s.a.es.EsSettings] Elasticsearch listening on [HTTP: 127.0.0.1:9001, TCP: 127.0.0.1:39157]

2023.12.29 13:31:19 INFO app[][o.s.a.ProcessLauncherImpl] Launch process[ELASTICSEARCH] from [/opt/sonarqube/elasticsearch]: /opt/sonarqube/elasticsearch/bin/elasticsearch

2023.12.29 13:31:20 INFO app[][o.s.a.SchedulerImpl] Waiting for Elasticsearch to be up and running

2023.12.29 13:31:34 WARN app[][o.s.a.p.AbstractManagedProcess] Process exited with exit value [ElasticSearch]: 78

2023.12.29 13:31:34 INFO app[][o.s.a.SchedulerImpl] Process[ElasticSearch] is stopped

2023.12.29 13:31:34 INFO app[][o.s.a.SchedulerImpl] SonarQube is stopped

2023.12.29 13:31:36 INFO app[][o.s.a.AppFileSystem] Cleaning or creating temp directory /opt/sonarqube/temp

2023.12.29 13:31:36 INFO app[][o.s.a.es.EsSettings] Elasticsearch listening on [HTTP: 127.0.0.1:9001, TCP: 127.0.0.1:37915]

2023.12.29 13:31:36 INFO app[][o.s.a.ProcessLauncherImpl] Launch process[ELASTICSEARCH] from [/opt/sonarqube/elasticsearch]: /opt/sonarqube/elasticsearch/bin/elasticsearch

2023.12.29 13:31:36 INFO app[][o.s.a.SchedulerImpl] Waiting for Elasticsearch to be up and running

^Z

[1]+ Stopped sudo tail -f /opt/sonarqube/logs/sonar.log

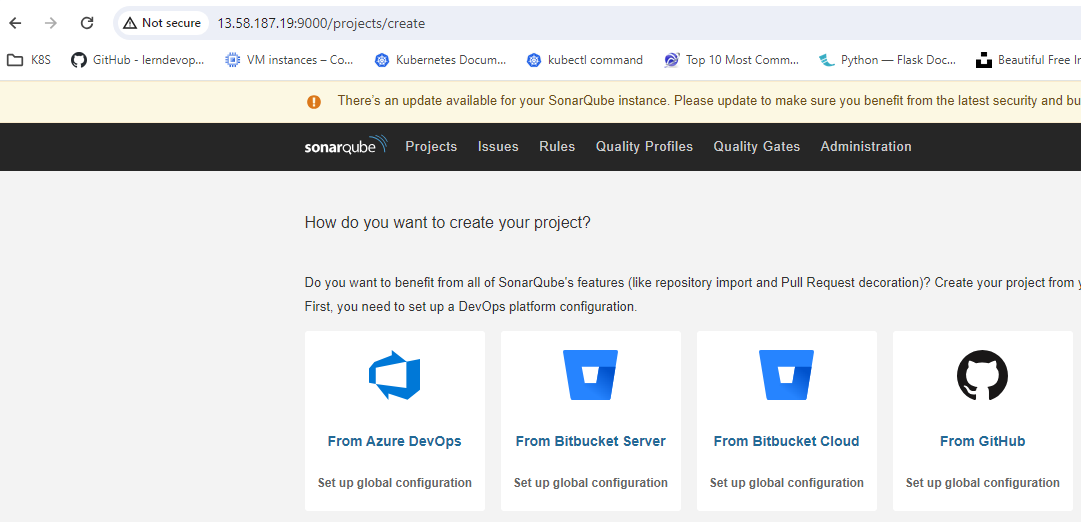
ubuntu@ip-10-0-28-226:~$

cntrl+z to stop.

<http://18.218.175.195:9000/>

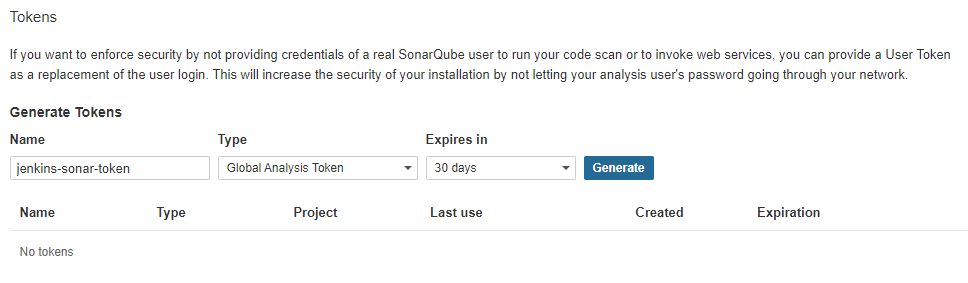
not working

after rebooting instance its working now

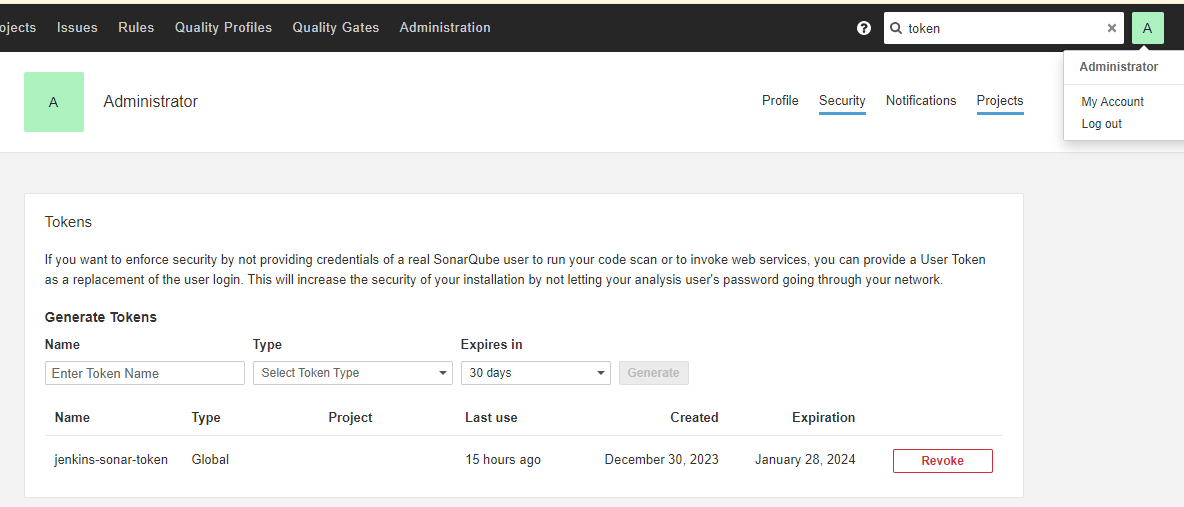


Username admin pswd sonar

Now integrate sonarqube with Jenkins

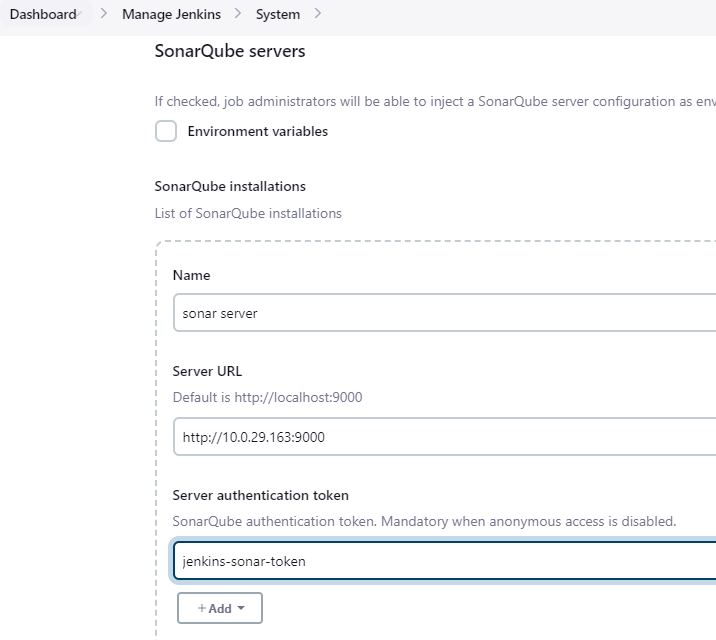


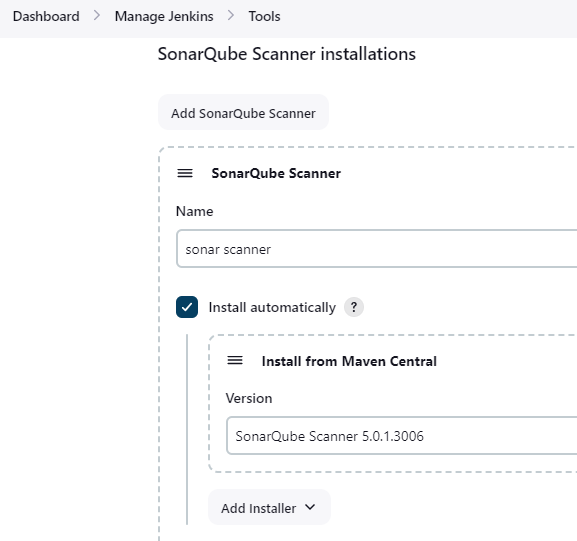
Under my account create sonar token



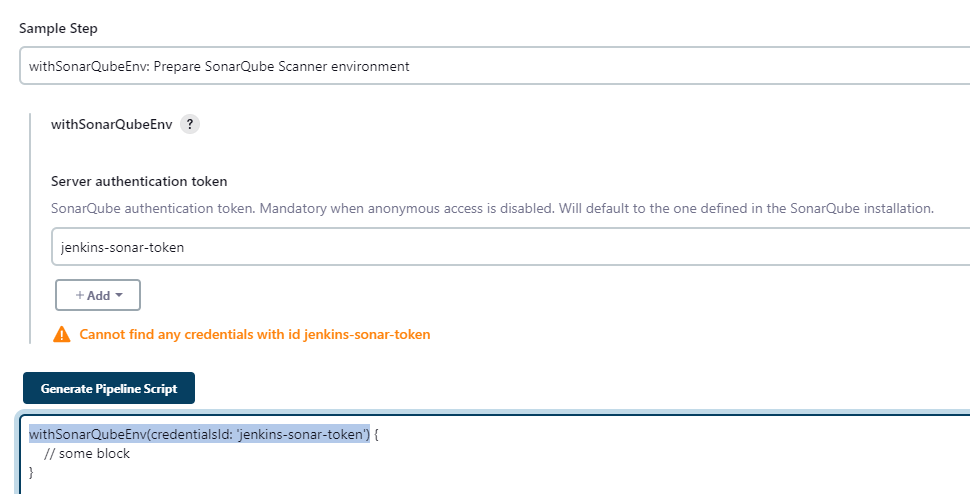
sqa\_ab1260b91fca5306533e4d9c697b9d95862e261e

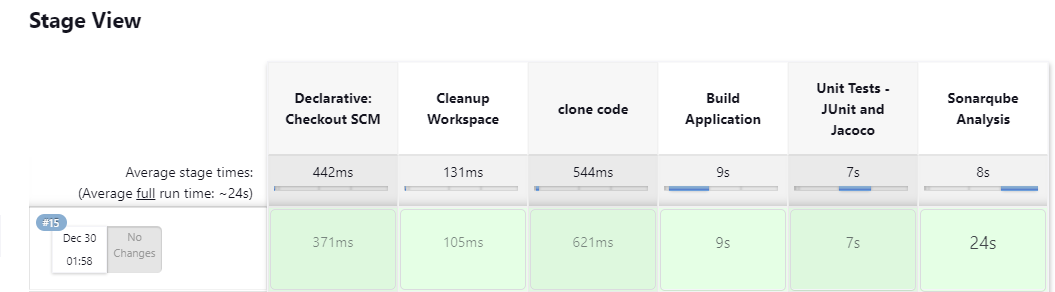
add credential in Jenkins for above sonar token and install sonar plugins.





[ERROR] SonarQube server [[http://localhost:9000](http://localhost:9000/)] can not be reached





        stage("Sonarqube Analysis"){

            steps {

                script {

                    withSonarQubeEnv(credentialsId: 'jenkins-sonar-token') {

                    sh "mvn sonar:sonar"

                  }

                }

            }

Private IP also work in adding sonar IP in config system.

Docker token for jenkins

dckr\_pat\_xISijV4og6NyPU4LzIypkPaFd1c

error with Jenkins api token

  environment {

        APP\_NAME = "register-app-pipeline"

        RELEASE = "1.0.0"

        DOCKER\_USER = "shrijandra"

        DOCKER\_PASS = 'dockerpsw'

        IMAGE\_NAME = "${DOCKER\_USER}" + "/" + "${APP\_NAME}"

        IMAGE\_TAG = "${RELEASE}-${BUILD\_NUMBER}"

       // JENKINS\_API\_TOKEN = credentials("JENKINS\_API\_TOKEN")

    }

Performing register app CI and build and push docker image in docker hub.

When putting private ip for sonarqube getting below error.

With Private IP

WARN: Unable to locate 'report-task.txt' in the workspace. Did the SonarScanner succeed?

Public IP also not working

process apparently never started in /var/lib/jenkins/workspace/devops@tmp/durable-d2ca79e7

(running Jenkins temporarily with -Dorg.jenkinsci.plugins.durabletask.BourneShellScript.LAUNCH\_DIAGNOSTICS=true might make the problem clearer)

[Click here to forcibly terminate running steps](http://3.139.75.165:8080/job/devops/19/console)

script returned exit code -2

[Pipeline] }

WARN: Unable to locate 'report-task.txt' in the workspace. Did the SonarScanner succeed?

Reboot is also not working

[Pipeline] waitForQualityGate

Checking status of SonarQube task 'AYy6cKWbWcRaV-\_oyTJ7' on server 'sonar server'

SonarQube task 'AYy6cKWbWcRaV-\_oyTJ7' status is 'PENDING'

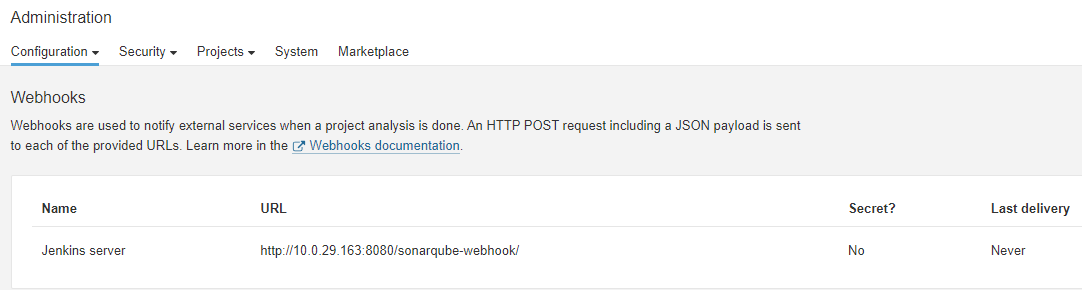
Aborted by [shri](http://3.139.75.165:8080/user/jenkins)

So to get rid of this create webhook for Jenkins server in sonarqube

**Configure SonarQube webhook for quality gate**

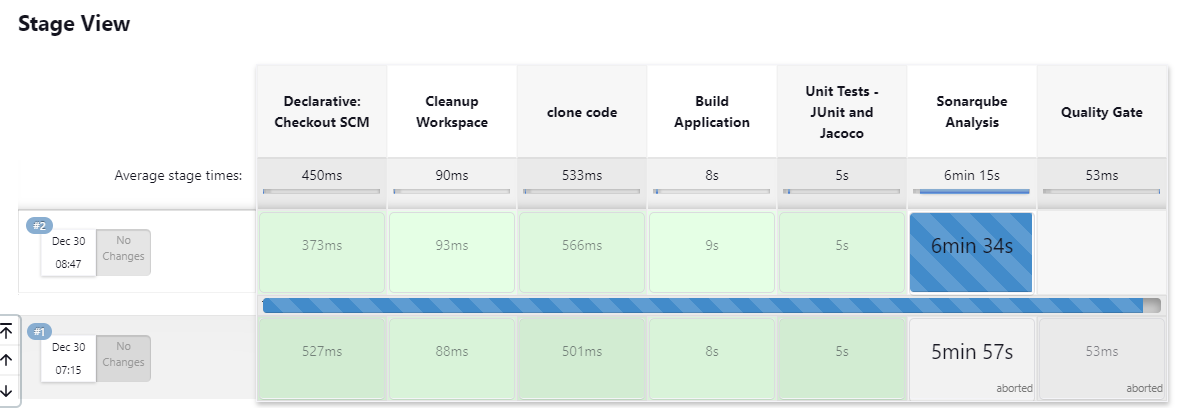
Administration > Configuration > Webhooks > Create

The URL should point to your Jenkins server http://{JENKINS\_HOST}/sonarqube-webhook/



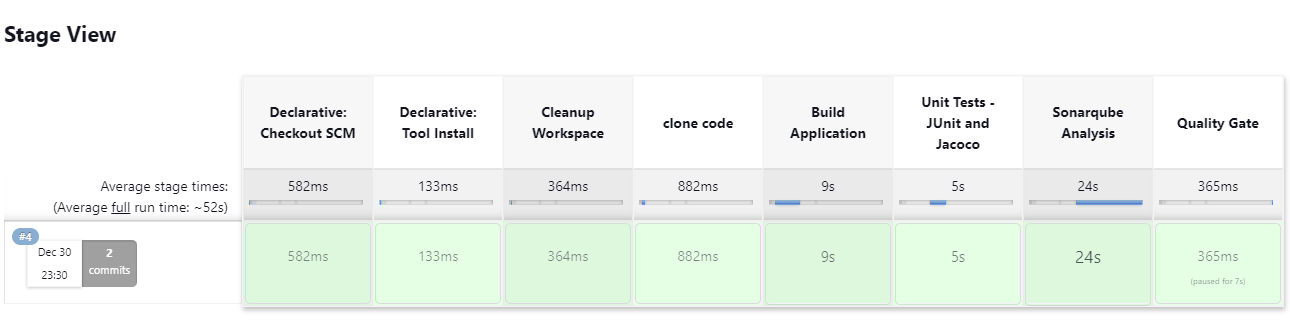
Restarted Jenkins server

Added Private ip of sonarqube in Jenkins server system configuration will work successfully.



No changes

Just restart all, no issue in sonar analysis and quality gate

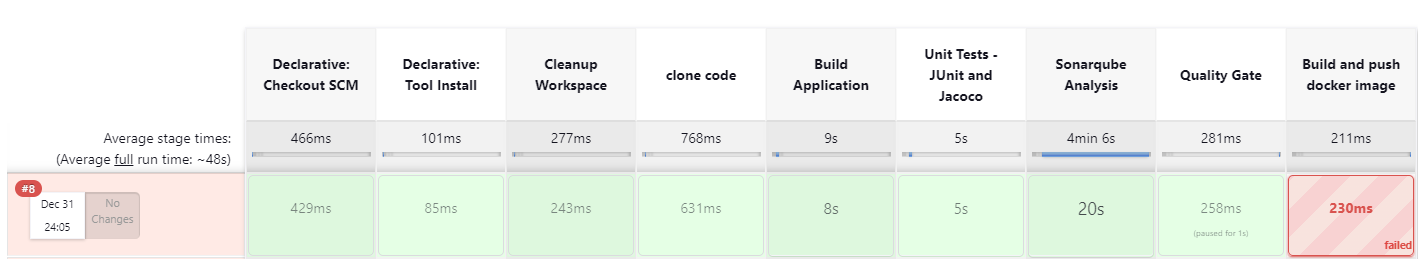


Checking status of SonarQube task 'AYy-XTtY7p3M6ReskJha' on server 'sonar server'

SonarQube task 'AYy-XTtY7p3M6ReskJha' status is 'IN\_PROGRESS'

SonarQube task 'AYy-XTtY7p3M6ReskJha' status is 'SUCCESS'

SonarQube task 'AYy-XTtY7p3M6ReskJha' completed. Quality gate is 'OK'



Installed docker plugin

Caused: java.io.IOException: Cannot run program "docker": error=2, No such file or directory

Last login: Sat Dec 30 14:44:27 2023 from 3.16.146.3

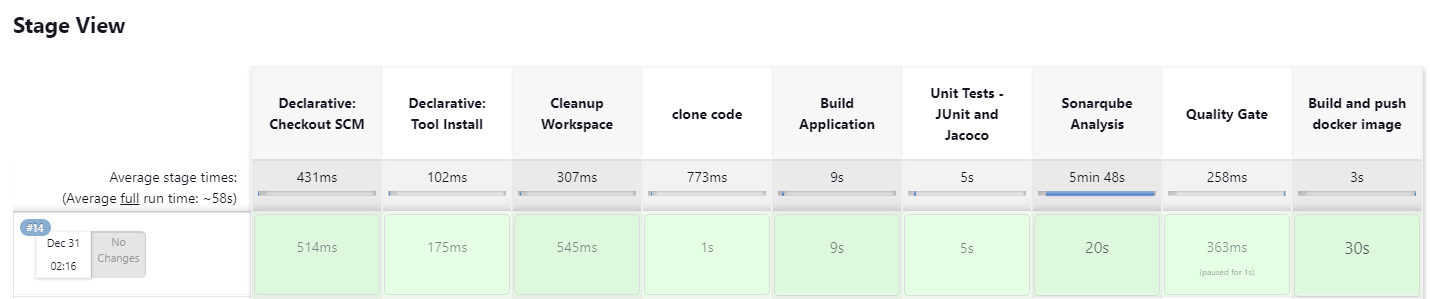
[root@ip-10-0-29-163 ~]# docker --version

-bash: docker: command not found

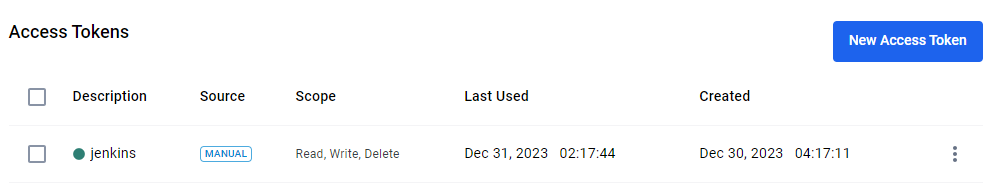
[root@ip-10-0-29-163 ~]# docker ps

-bash: docker: command not found

[root@ip-10-0-29-163 ~]#

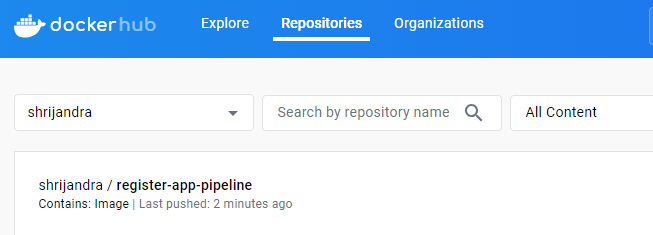


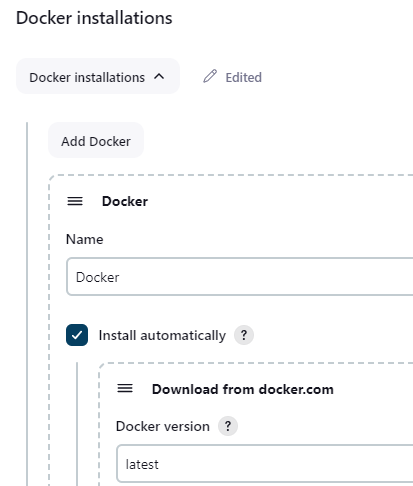
Shows used access docker tocken



+ docker push shrijandra/register-app-pipeline:latest

The push refers to repository [docker.io/shrijandra/register-app-pipeline]





This won’t work, you need to install docker in Jenkins server

Sudo apt-get install docker.io

Sudo usermod -aG docker $USER

[root@ip-10-0-29-163 ~]# sudo usermod -aG docker jenkins

[root@ip-10-0-29-163 ~]# jenkins --version

2.426.2

[root@ip-10-0-29-163 ~]# docker --version

Docker version 20.10.25, build b82b9f3

[root@ip-10-0-29-163 ~]# init 6

[root@ip-10-0-29-163 ~]#

New token

ghp\_3v2jOiQ20N3UUgoX51R4fMThYHlEe925lxp8

updated admin access to token otherwisise permission denied was showing.

ubuntu@eks-bootstrap-server:~$ kubectl get pods

NAME READY STATUS RESTARTS AGE

register-app-deployment-788fcc67d7-lbzcp 0/1 ImagePullBackOff 0 105s

register-app-deployment-788fcc67d7-zwh94 0/1 ErrImagePull 0 105s

ubuntu@eks-bootstrap-server:~$

 containers:

        - name: register-app

          image: shrijandra/register-app-pipeline:1.0.0-14

          resources:

Events:

Type Reason Age From Message

---- ------ ---- ---- -------

Normal Scheduled 5m5s default-scheduler Successfully assigned default/register-app-deployment-788fcc67d7-lbzcp to ip-192-168-54-135.us-east-2.compute.internal

Normal Pulling 3m44s (x4 over 5m4s) kubelet Pulling image "ashfaque9x/register-app-pipeline:1.0.0-14"

Warning Failed 3m44s (x4 over 5m4s) kubelet Failed to pull image "ashfaque9x/register-app-pipeline:1.0.0-14": rpc error: code = NotFound desc = failed to pull and unpack image "docker.io/ashfaque9x/register-app-pipeline:1.0.0-14": failed to resolve reference "docker.io/ashfaque9x/register-app-pipeline:1.0.0-14": docker.io/ashfaque9x/register-app-pipeline:1.0.0-14: not found

Warning Failed 3m44s (x4 over 5m4s) kubelet Error: ErrImagePull

Warning Failed 3m22s (x6 over 5m3s) kubelet Error: ImagePullBackOff

Normal BackOff 3m8s (x7 over 5m3s) kubelet Back-off pulling image "ashfaque9x/register-app-pipeline:1.0.0-14"

ubuntu@eks-bootstrap-server:~$

Events:

Type Reason Age From Message

---- ------ ---- ---- -------

Warning FailedScheduling 80s default-scheduler 0/2 nodes are available: 2 Insufficient cpu. preemption: 0/2 nodes are available: 2 No preemption victims found for incoming pod..

ubuntu@eks-bootstrap-server:~$ kubectl get pods

NAME READY STATUS RESTARTS AGE

register-app-deployment-788fcc67d7-lbzcp 0/1 ImagePullBackOff 0 10m

register-app-deployment-788fcc67d7-zwh94 0/1 ImagePullBackOff 0 10m

register-app-deployment-869fbbbf76-8mv47 0/1 Pending 0 4m5s

ubuntu@eks-bootstrap-server:~$ kubectl describe pod register-app-deployment-869fbbbf76-8mv47

resources:

limits:

memory: "256Mi"

cpu: "250m" //changes to 250m from 500m

ubuntu@eks-bootstrap-server:~$ kubectl get pods

NAME READY STATUS RESTARTS AGE

register-app-deployment-788b9bd64-blpfm 1/1 Running 0 63s

register-app-deployment-788b9bd64-zjjxv 1/1 Running 0 50s

ubuntu@eks-bootstrap-server:~$

ubuntu@eks-bootstrap-server:~$ kubectl get svc

NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE

kubernetes ClusterIP 10.100.0.1 <none> 443/TCP 70m

register-app-service LoadBalancer 10.100.248.123 a5f10bfde88fa4d0e94efd5c857a326b-1724052123.us-east-2.elb.amazonaws.com 8080:31036/TCP 12m

ubuntu@eks-bootstrap-server:~$

