

DEVSECOPS PROJECTS – 3 (COMPLETE CI-CD PETSHOP Project) Deploy to Docker

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PIPELINE SYNTAX:

```
pipeline{
    agent any

    tools {
        jdk 'jdk17'
        maven 'maven3'
    }

    environment {
        SCANNER_HOME=tool 'sonar-scanner'
    }

    stages{
        stage ('clean Workspace'){
            steps{
                cleanWs()
            }
        }

        stage ('checkout scm') {
            steps {
                checkout scmGit(branches: [[name: '*/master']], extensions: [], userRemoteConfigs: [[url:
'https://github.com/Aj7Ay/jpetstore-6.git']])
            }
        }

        stage ('maven compile') {
            steps {
```

```

        sh 'mvn clean compile'
    }
}
stage ('maven Test') {
    steps {
        sh 'mvn test'
    }
}
stage("Sonarqube Analysis "){
    steps{
        withSonarQubeEnv('sonar-server') {
            sh "' $SCANNER_HOME/bin/sonar-scanner -Dsonar.projectName=Petshop \
            -Dsonar.java.binaries=. \
            -Dsonar.projectKey=Petshop '"
        }
    }
}
stage("quality gate"){
    steps {
        script {
            waitForQualityGate abortPipeline: false, credentialsId: 'Sonar-token'
        }
    }
}
stage("maven package"){
    steps {
        sh 'mvn package'
    }
}
stage("nexus artifactory"){
    steps{
        nexusArtifactUploader artifacts: [[artifactId: 'jpetstore', classifier: '', file:
'/var/lib/jenkins/workspace/DevSecops-project-2/target/jpetstore.war', type: 'war']], credentialsId: 'nexus',

```

```
groupId: 'org.mybatis', nexusUrl: '54.167.247.114:8081', nexusVersion: 'nexus3', protocol: 'http', repository:
'maven-snapshots', version: '6.1.1-SNAPSHOT'
```

```
}
```

```
}
```

```
stage("OWASP Dependency Check"){
```

```
  steps{
```

```
    dependencyCheck additionalArguments: '--scan ./ --format XML', odcInstallation: 'DP-Check'
```

```
    dependencyCheckPublisher pattern: '**/dependency-check-report.xml'
```

```
  }
```

```
}
```

```
stage ('Build and push to docker hub'){
```

```
  steps{
```

```
    script{
```

```
      withDockerRegistry(credentialsId: 'docker', toolName: 'docker') {
```

```
        sh "docker build -t venkatesh09/jpetshop:v1.0.0 ."
```

```
        sh "docker push venkatesh09/jpetshop:v1.0.0"
```

```
      }
```

```
    }
```

```
  }
```

```
}
```

```
stage ('Deploy to container'){
```

```
  steps{
```

```
    sh "docker run --name Venkat -d -p 8085:8080 venkatesh09/jpetshop:v1.0.0"
```

```
  }
```

```
}
```

```
}
```

```
}
```

OUTPUT:

The screenshot shows the Jenkins web interface for a pipeline named 'DevSecops-project-2'. The left sidebar contains navigation links: Status, Changes, Build Now, Configure, Delete Pipeline, Full Stage View, SonarQube, Rename, and Pipeline Syntax. The main area displays the 'Stage View' of the pipeline. A table lists the stages and their durations:

Stage	Duration
Declarative: Tool Install	137ms
clean Workspace	276ms
checkout scm	722ms
maven compile	1min 18s
maven Test	1min 38s
Sonarqube Analysis	31s
quality gate	404ms
maven package	1min 36s
nexus artifactory	840ms
OWASP Dependency Check	16s
Build and push to docker hub	1min 56s
Deploy to container	59ms

Below the table, the 'SonarQube Quality Gate' section shows the 'Petshop' project with a 'Passed' status. The 'Permalinks' section shows the last build (112) from 3 hours and 6 minutes ago.

SonarQube Analysis status:

The screenshot shows the SonarQube web interface. The left sidebar contains navigation links: My Favorites, All, Filters, Quality Gate, Reliability (Bugs), Security (Vulnerabilities), and Security Review (Security Hotspots). The main area displays the 'Projects' page. A table lists the projects and their analysis status:

Project	Status	Last analysis
Petshop	Passed	9 minutes ago

Below the table, the 'Petshop' project details are shown. The analysis results are as follows:

Metric	Value	Rating
Bugs	66	C
Vulnerabilities	0	A
Hotspots Reviewed	0.0%	E
Code Smells	79	A
Coverage	0.0%	F
Duplications	5.2%	F
Lines	6.7k	S

The bottom of the page shows a warning message: 'Embedded database should be used for evaluation purposes only'. The footer indicates that SonarQube technology is powered by SonarSource SA, Community Edition - Version 9.9.3 (build 79811) - LGPL v3 - Community - Documentation - Plugins - Web API.

Dependency check status:

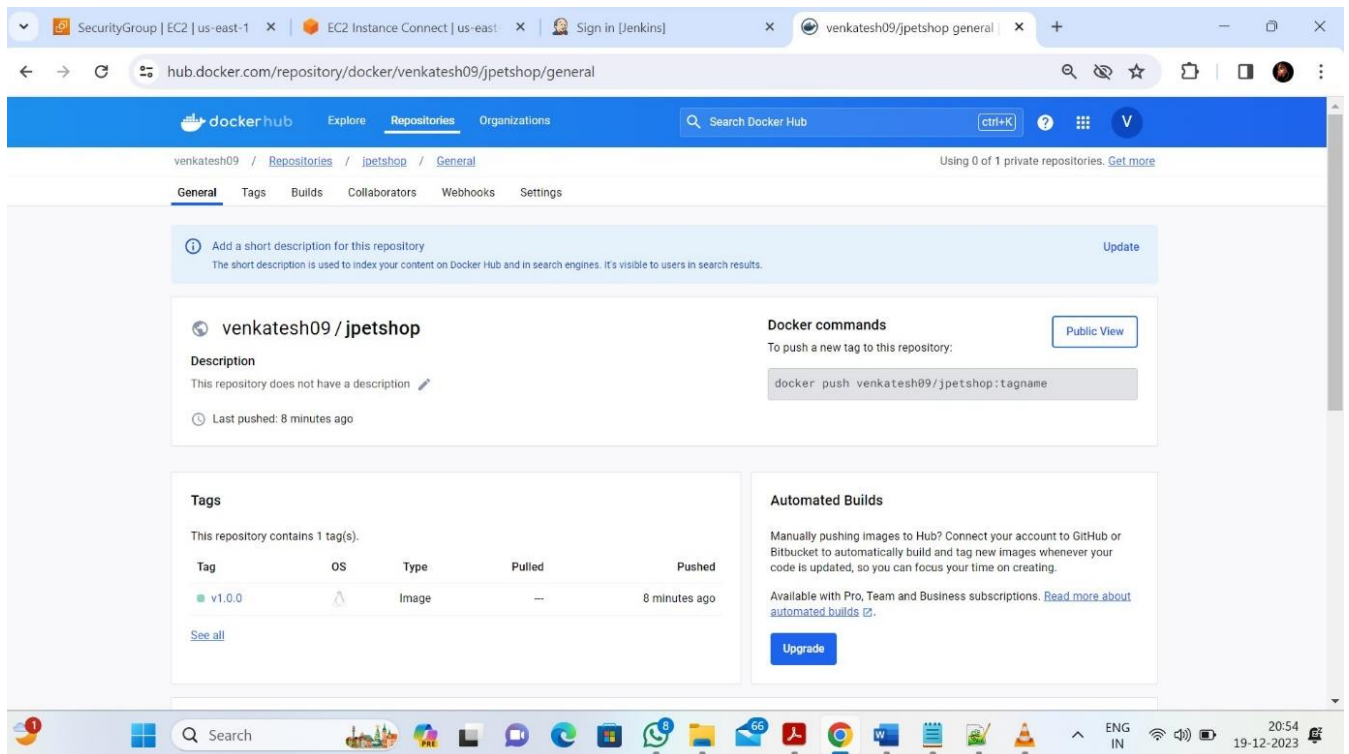
The screenshot displays the Jenkins web interface for a build named 'devsecops-project2' with build number '#6'. The 'Dependency-Check' step is selected in the left sidebar. The main content area shows the 'Dependency-Check Results' for the build. At the top, there is a 'SEVERITY DISTRIBUTION' bar chart with two segments: a red segment representing 'Critical' severity (count 2) and an orange segment representing 'High' severity (count 2). Below the chart is a table listing the detected vulnerabilities.

File Name	Vulnerability	Severity	Weakness
+ jpetstore.war: spring-core-5.3.29.jar	NVD CVE-2016-1000027	Critical	CWE-502
+ jpetstore.war: spring-web-5.3.29.jar	OSSINDEX CVE-2016-1000027	High	CWE-502
+ spring-core-5.3.29.jar	NVD CVE-2016-1000027	Critical	CWE-502
+ spring-web-5.3.29.jar	OSSINDEX CVE-2016-1000027	High	CWE-502

The left sidebar contains the following navigation options: Status, Changes, Console Output, View as plain text, Edit Build Information, Delete build '#6', Git Build Data, **Dependency-Check** (selected), Restart from Stage, Replay, Pipeline Steps, Workspaces, and Previous Build. The top of the page shows the Jenkins logo, a search bar, and user information for 'Venkatesh'.

Nexus Artifact Uploader:

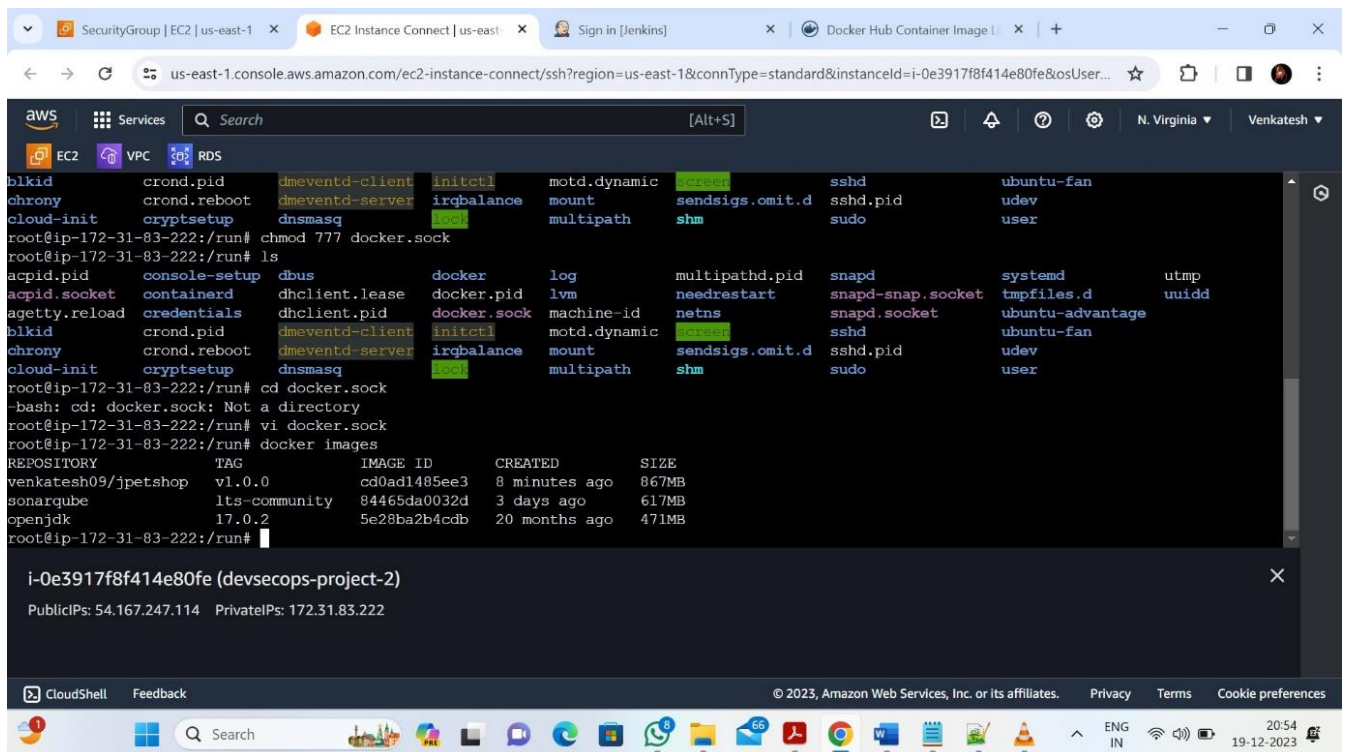
Image pushed to Docker Hub:



The screenshot shows the Docker Hub repository page for `venkatesh09/jpetshop`. The page is titled "venkatesh09 / jpetshop" and shows the repository details. The description states: "This repository does not have a description". The last pushed time is "8 minutes ago". The tags section shows a single tag `v1.0.0` of type `Image`, pushed 8 minutes ago. The Docker commands section shows the command `docker push venkatesh09/jpetshop:tagname`. The automated builds section is empty.

Tag	OS	Type	Pulled	Pushed
v1.0.0		Image	---	8 minutes ago

Image Created in Docker:



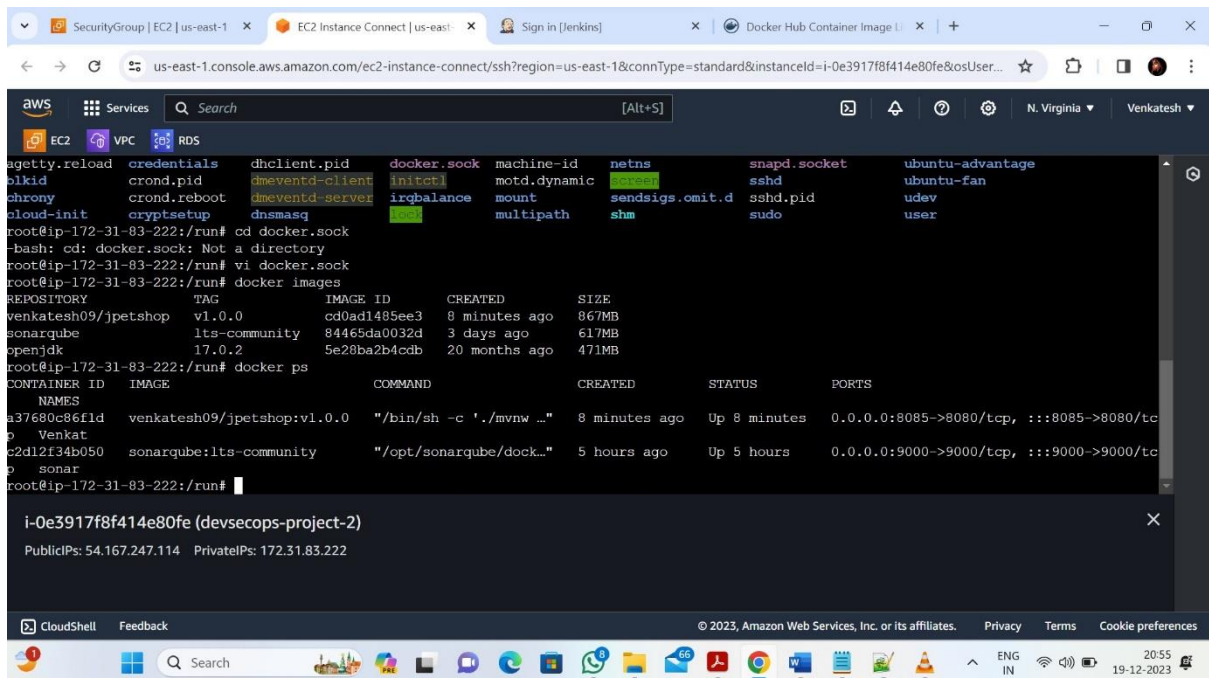
The screenshot shows the AWS CloudShell terminal interface. The terminal output displays the contents of the `docker.sock` file, which lists the Docker daemon's configuration. The output is as follows:

```
root@ip-172-31-83-222:/run# ls
acpid.pid  console-setup  dbus  docker  log  multipathd.pid  snapd  systemd  utmp
chrony     containerd    dhclient.lease  docker.pid  lvm  needrestart  snapd-snap.socket  tmpfiles.d  uuid
agetty.reload  credentials  dhclient.pid  docker.sock  machine-id  netns  snapd.socket  ubuntu-advantage  user
blkid        crond.pid    dmeventd-client  initctl  motd.dynamic  openssh  sendsigs.omit.d  ubuntu-fan  udev
cloud-init   cryptsetup   dnsmasq  irgbalance  mount  multipath  sshd  sudo  user
root@ip-172-31-83-222:/run# cd docker.sock
-bash: cd: docker.sock: Not a directory
root@ip-172-31-83-222:/run# vi docker.sock
root@ip-172-31-83-222:/run# docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
venkatesh09/jpetshop v1.0.0             cd0ad1485ee3       8 minutes ago      867MB
sonarqube            lts-community      84465da0032d       3 days ago         617MB
openjdk              17.0.2             5e28ba2b4cdb       20 months ago      471MB
```

The terminal also shows the public and private IP addresses of the instance:

```
i-0e3917f8f414e80fe (devsecops-project-2)
PublicIPs: 54.167.247.114  PrivateIPs: 172.31.83.222
```

Container Created in Docker:



The screenshot shows an AWS CloudShell terminal session. The user is logged in as Venkatesh in the us-east-1 region. The terminal output shows the following commands and results:

```
root@ip-172-31-83-222:/run# cd docker.sock
-bash: cd: docker.sock: Not a directory
root@ip-172-31-83-222:/run# vi docker.sock
root@ip-172-31-83-222:/run# docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
venkatesh09/jpetshop	v1.0.0	cd0ad1485ee3	8 minutes ago	867MB
sonarqube	lts-community	84465da0032d	3 days ago	617MB
openjdk	17.0.2	5e28ba2b4cdb	20 months ago	471MB

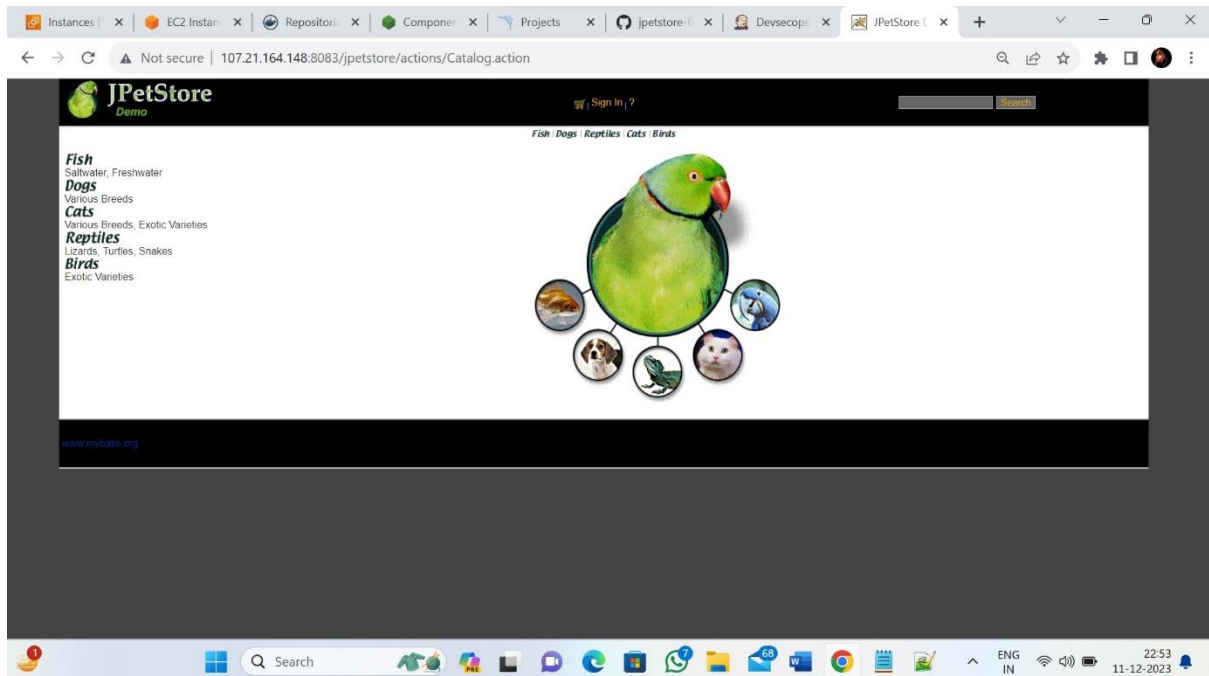
```
root@ip-172-31-83-222:/run# docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
a37680c86f1d	venkatesh09/jpetshop:v1.0.0	"/bin/sh -c './mvnw ...'"	8 minutes ago	Up 8 minutes	0.0.0.0:8085->8080/tcp, :::8085->8080/tcp
c2d12f34b050	sonarqube:lts-community	"/opt/sonarqube/dock..."	5 hours ago	Up 5 hours	0.0.0.0:9000->9000/tcp, :::9000->9000/tcp

A pop-up window shows the instance details for i-0e3917f8f414e80fe (devsecops-project-2):

- PublicIPs: 54.167.247.114
- PrivateIPs: 172.31.83.222

Final Output:



Plugins Installed In these Project are:

Maven Integration (No Need to restart the jenkins)

Config file provider

Pipeline maven integration

Eclipse Temurin installer

Sonarqube Scanner

OWASP dependency-Check

Docker

Docker commons

Docker pipeline

Docker API

Docker build-step

Cloud Bees docker Build & Publish