

I am running the Jenkins as a docker container as shown below.

The screenshot shows the Jenkins web interface in a browser. The top navigation bar includes the Jenkins logo, a search bar, and user information (admin, log out). The left sidebar contains a 'Dashboard' link and a list of items: New Item, People, Build History, Manage Jenkins, My Views, Lockable Resources, and New View. The main content area displays a table of builds. The table has columns for status (S), icon (W), name, last success, last failure, and last duration. The builds listed are: ansible-demo, jenkins-terraform-integration, mvn_sonar, newvm, nginx image, Parking_backend, Parking_backend-jar, and sonarqube. The bottom of the image shows a Windows taskbar with various application icons and the system clock indicating 3:33 PM on 5/14/2021.

S	W	Name	Last Success	Last Failure	Last Duration
●	☁	ansible-demo	N/A	19 hr - #8	1.1 sec
●	☁	jenkins-terraform-integration	21 hr - #24	22 hr - #22	18 sec
●	☀	mvn_sonar	41 sec - #5	6 min 25 sec - #2	5.6 sec
●	☁	newvm	1 day 0 hr - #6	1 day 0 hr - #5	28 sec
●	☁	nginx image	N/A	22 hr - #1	7 sec
●	☁	Parking_backend	2 hr 54 min - #9	1 hr 28 min - #13	1 min 4 sec
●	☁	Parking_backend-jar	36 min - #15	39 min - #13	1 min 9 sec
●	☀	sonarqube	3 hr 32 min - #1	N/A	38 sec

Maven install:

```
root@5ccd9b0cd2a4:/opt/maven# apt-get install wget
Reading package lists... Done
Building dependency tree
Reading state information... Done
```

```
root@5ccd9b0cd2a4:/opt/maven# apt -get install wget
E: Command line option 'g' [from -get] is not understood in combination with the other options.
root@5ccd9b0cd2a4:/opt/maven# apt-get install wget
Reading package lists... Done
Building dependency tree
Reading state information... Done
wget is already the newest version (1.20.1-1.1).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
root@5ccd9b0cd2a4:/opt/maven# wget https://apache.claz.org/maven/maven-3/3.6.3/binaries/apache-maven-3.6.3-bin.tar.gz
--2021-05-14 05:57:31-- https://apache.claz.org/maven/maven-3/3.6.3/binaries/apache-maven-3.6.3-bin.tar.gz
Resolving apache.claz.org (apache.claz.org)... 69.162.86.134
Connecting to apache.claz.org (apache.claz.org)|69.162.86.134|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 9506321 (9.1M) [application/x-gzip]
Saving to: 'apache-maven-3.6.3-bin.tar.gz'

apache-maven-3.6.3-bin.tar.gz  100%[=====>]  9.07M  525KB/s  in 10s

2021-05-14 05:57:42 (902 KB/s) - 'apache-maven-3.6.3-bin.tar.gz' saved [9506321/9506321]
```

```
root@5ccd9b0cd2a4:/opt/maven# tar -xzvf apache-maven-3.6.3-bin.tar.gz
apache-maven-3.6.3/README.txt
apache-maven-3.6.3/LICENSE
apache-maven-3.6.3/NOTICE
apache-maven-3.6.3/lib/
apache-maven-3.6.3/lib/cdi-api.license
apache-maven-3.6.3/lib/commons-cli.license
apache-maven-3.6.3/lib/commons-io.license
apache-maven-3.6.3/lib/commons-lang3.license
apache-maven-3.6.3/lib/guava.license
apache-maven-3.6.3/lib/guice.license
apache-maven-3.6.3/lib/jansi.license
apache-maven-3.6.3/lib/javax.inject.license
apache-maven-3.6.3/lib/jcl-over-slf4j.license
apache-maven-3.6.3/lib/jsoup.license
apache-maven-3.6.3/lib/jsr250-api.license
apache-maven-3.6.3/lib/org.eclipse.sisu.inject.license
apache-maven-3.6.3/lib/org.eclipse.sisu.plexus.license
apache-maven-3.6.3/lib/plexus-cipher.license
apache-maven-3.6.3/lib/plexus-component-annotations.license
apache-maven-3.6.3/lib/plexus-interpolation.license
apache-maven-3.6.3/lib/plexus-sec-dispatcher.license
apache-maven-3.6.3/lib/plexus-utils.license
apache-maven-3.6.3/lib/slf4j-api.license
apache-maven-3.6.3/boot/
apache-maven-3.6.3/boot/plexus-classworlds.license
apache-maven-3.6.3/lib/jansi-native/
```

```
root@5ccd9b0cd2a4:/opt/maven# apt-get update
Get:1 https://apt.releases.hashicorp.com buster InRelease [4,421 B]
Hit:2 http://deb.debian.org/debian buster InRelease
Get:3 http://deb.debian.org/debian buster-updates InRelease [51.9 kB]
Hit:5 https://packages.microsoft.com/repos/azure-cli buster InRelease
Get:6 http://security.debian.org/debian-security buster/updates InRelease [65.4 kB]
Hit:4 https://packagecloud.io/github/git-lfs/debian buster InRelease
Get:7 https://apt.releases.hashicorp.com buster/main amd64 Packages [23.5 kB]
Get:8 http://security.debian.org/debian-security buster/updates/main amd64 Packages [289 kB]
Fetched 434 kB in 1s (490 kB/s)
Reading package lists... Done
root@5ccd9b0cd2a4:/opt/maven#
```

```
root@5ccd9b0cd2a4:/opt/maven# apt-get install vim
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  vim-common vim-runtime xxd
Suggested packages:
  ctags vim-doc vim-scripts
The following NEW packages will be installed:
  vim vim-common vim-runtime xxd
0 upgraded, 4 newly installed, 0 to remove and 0 not upgraded.
Need to get 7,390 kB of archives.
After this operation, 33.7 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://deb.debian.org/debian buster/main amd64 xxd amd64 2:8.1.0875-5 [140 kB]
Get:2 http://deb.debian.org/debian buster/main amd64 vim-common all 2:8.1.0875-5 [195 kB]
Get:3 http://deb.debian.org/debian buster/main amd64 vim-runtime all 2:8.1.0875-5 [5,775 kB]
```

```
root@5ccd9b0cd2a4:/opt/maven# tar -zxvf apache-maven-3.6.3-bin.tar.gz -C /opt/maven --strip-components=1
apache-maven-3.6.3/README.txt
apache-maven-3.6.3/LICENSE
apache-maven-3.6.3/NOTICE
apache-maven-3.6.3/lib/
apache-maven-3.6.3/lib/cdi-api.license
apache-maven-3.6.3/lib/commons-cli.license
apache-maven-3.6.3/lib/commons-io.license
apache-maven-3.6.3/lib/commons-lang3.license
apache-maven-3.6.3/lib/guava.license
apache-maven-3.6.3/lib/guice.license
apache-maven-3.6.3/lib/jansi.license
apache-maven-3.6.3/lib/javax.inject.license
apache-maven-3.6.3/lib/jcl-over-slf4j.license
apache-maven-3.6.3/lib/jsoup.license
apache-maven-3.6.3/lib/jsr250-api.license
apache-maven-3.6.3/lib/org.eclipse.sisu.inject.license
```

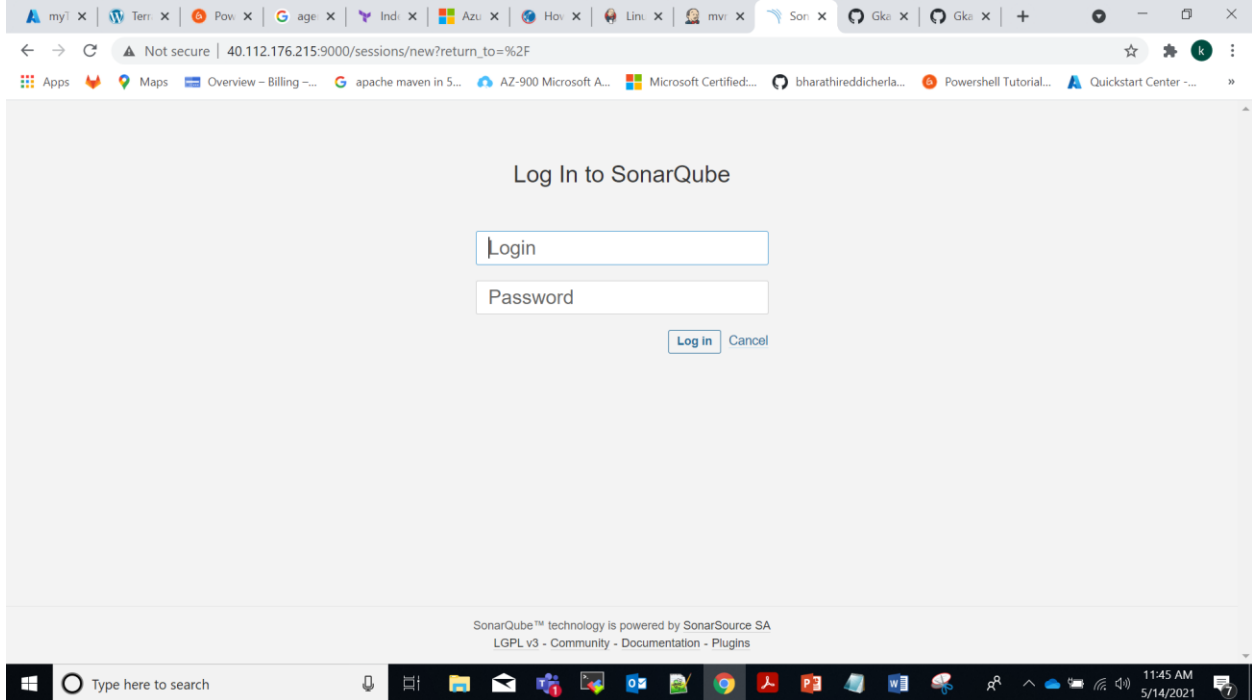
```
for i in /etc/profile.d/*.sh; do
    if [ -r $i ]; then
        . $i
    fi
done
unset i
fi
export M2_HOME=/opt/maven
export PATH=${M2_HOME}/bin:${PATH}
"/etc/profile" 36L, 828C
```

```
apache-maven-3.6.3/lib/jansi-1.17.1.jar
root@5ccd9b0cd2a4:/opt/maven# vi /etc/profile
root@5ccd9b0cd2a4:/opt/maven# source /etc/profile
```

```
root@5ccd9b0cd2a4:/opt/maven# mvn --version
Apache Maven 3.6.3 (cecedd343002696d0abb50b32b541b8a6ba2883f)
Maven home: /opt/maven
Java version: 1.8.0_292, vendor: AdoptOpenJDK, runtime: /opt/java/openjdk/jre
Default locale: en_US, platform encoding: UTF-8
OS name: "linux", version: "5.4.0-1047-azure", arch: "amd64", family: "unix"
root@5ccd9b0cd2a4:/opt/maven#
```

Sonarqube installation:

```
root@5ccd9b0cd2a4:/opt/maven# exit
exit
root@terraform:~# docker run -d --name sonarqube -p 9000:9000 sonarqube
Unable to find image 'sonarqube:latest' locally
latest: Pulling from library/sonarqube
339de151aab4: Pull complete
afbaf837951d: Pull complete
3bac5265cfae: Pull complete
98ab3d8984e8: Pull complete
be40d8b8b9f5: Pull complete
Digest: sha256:33c14ecfd97c49e26deabefe97cb8b9b4735a5bee1afb91bfe8fac57e9d39e1
Status: Downloaded newer image for sonarqube:latest
b2999df3e6564d262293ceeea211f2624d04536decc186b2ce8a42fff9cc5167
root@terraform:~#
```



Log In to SonarQube

Login

Password

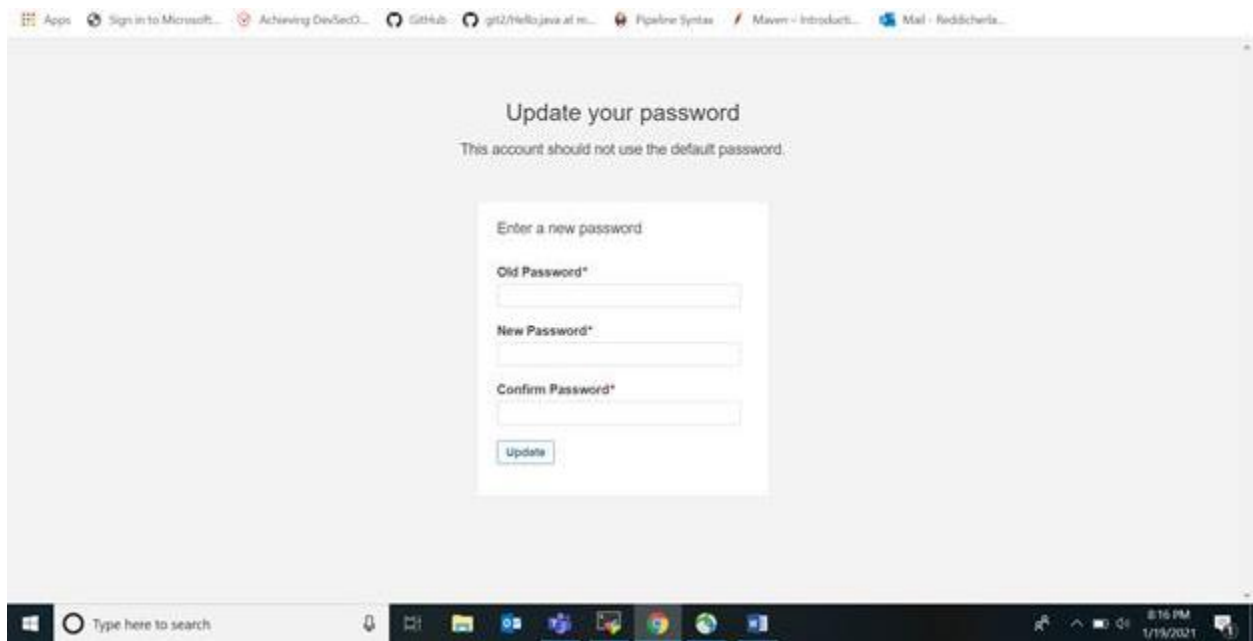
Log in Cancel

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LGPL v3 - Community - Documentation - Plugins


Type here to search


11:45 AM
5/14/2021

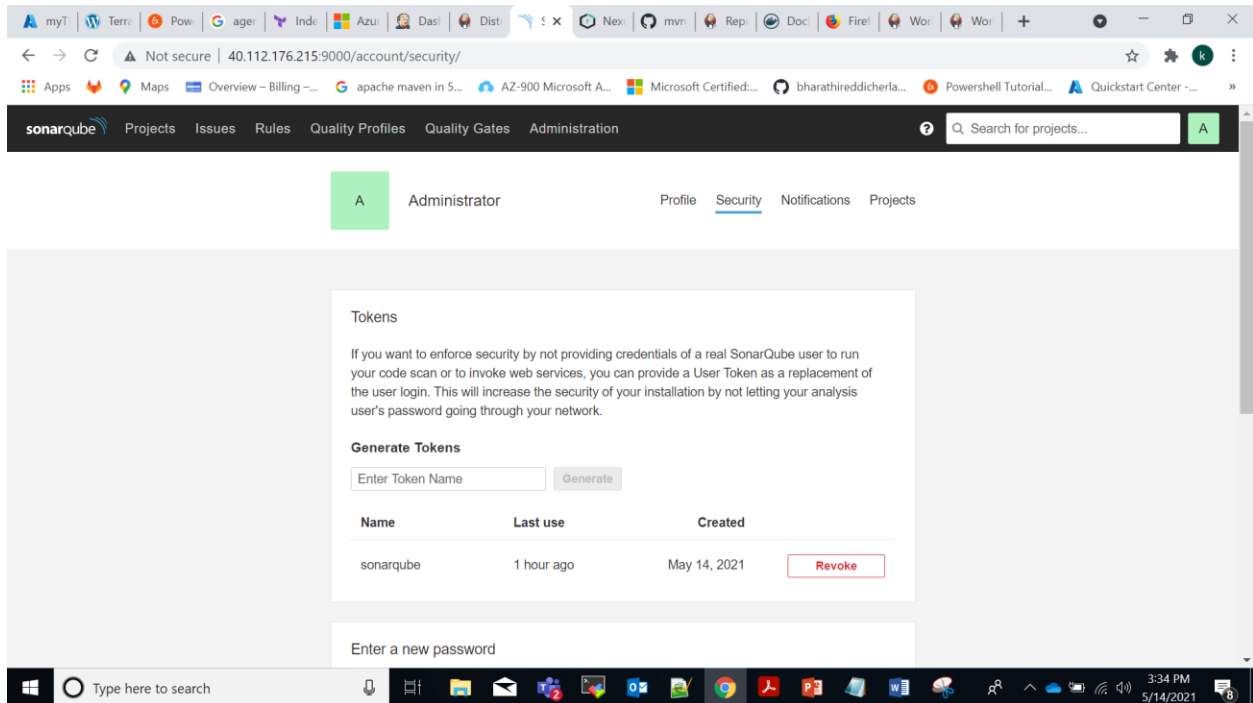
Set the new password admin to admin123



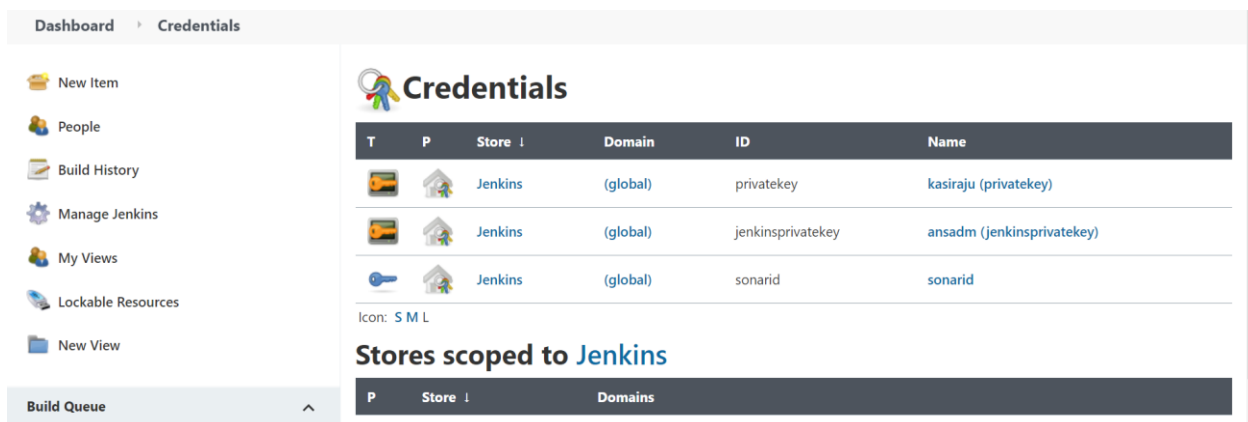
Now we need to set the sonarqube token in sonarqube scanner in that token copy the **secret** text

 New token "s" has been created. Make sure you copy it now, you won't be able to see it again!

 **Copy** `853a2a52f828fe7cc0ab8e8b6d1a7daeff9d588d`



Now back to Jenkins goto manage Jenkins and open manage credential add the screet text where you copied the token in sonarqube



NEXUS installation: here I am pulling the nexus image from my Docker Hub

Step:1 Create instance run a docker and create a volume as a name of nexus

```
docker run -d --name nexus-data sonatype/nexus echo "data-only container for nexus"
```

Run a command which give port number 8081 and name of nexcus1:

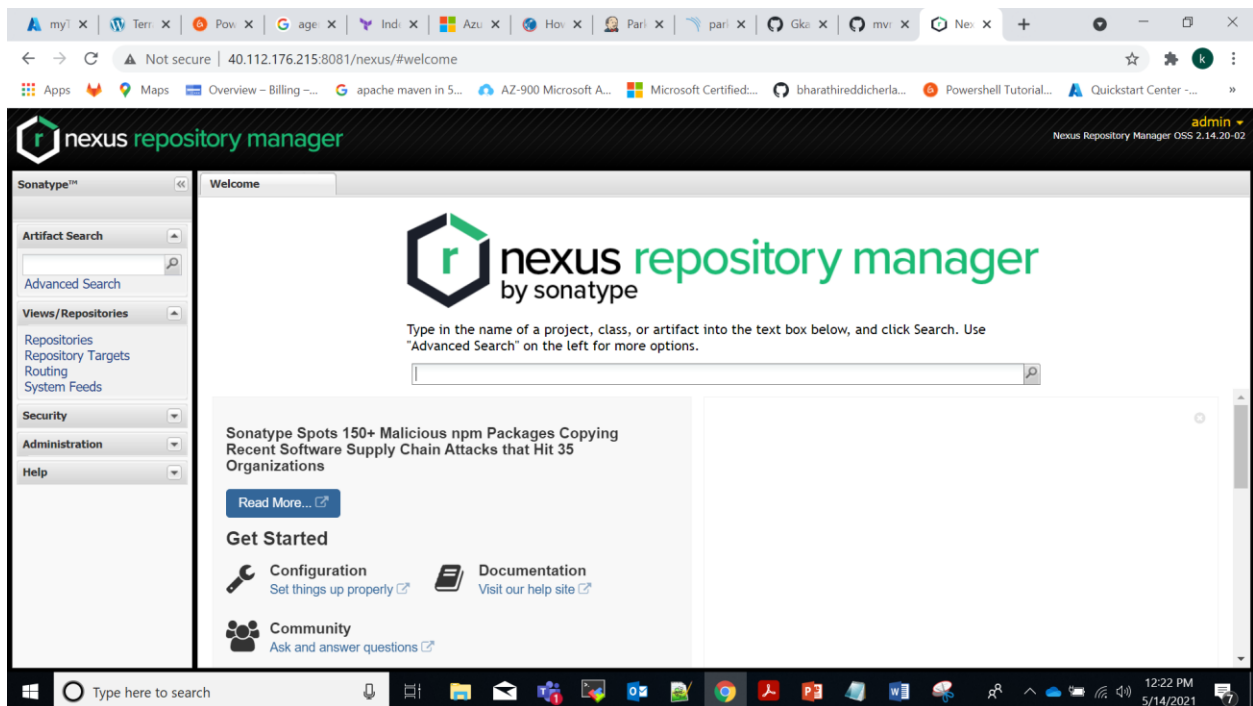
```
docker run -d -p 8081:8081 --name nexus1 --volumes-from nexus-data sonatype/nexus
```

```

40.112.176.215
root@terraform:~# docker run -d --name nexus-data sonatype/nexus echo "data-only container for nexus"
Unable to find image 'sonatype/nexus:latest' locally
latest: Pulling from sonatype/nexus
eae19a56e9c6: Pull complete
be73321c7956: Pull complete
7596ac238d3c: Pull complete
652c279e7d96: Pull complete
e7900c272f3e: Pull complete
Digest: sha256:ecfe1ee0b4b040d0e10ba40375f1b86ed0509a43ec430f0d480b550fcb6d2063
Status: Downloaded newer image for sonatype/nexus:latest
7118c4914e1bf4c0de8217677f17934aeaf6f41dbb62c18f98ca077c40abfb96
root@terraform:~# docker run -d -p 8081:8081 --name nexus1 --volumes-from nexus-data sonatype/nexus
91fee75b3a2a972194beef5766c85c917e67b7b9f2da1169f15c5ff0123689f0
root@terraform:~#

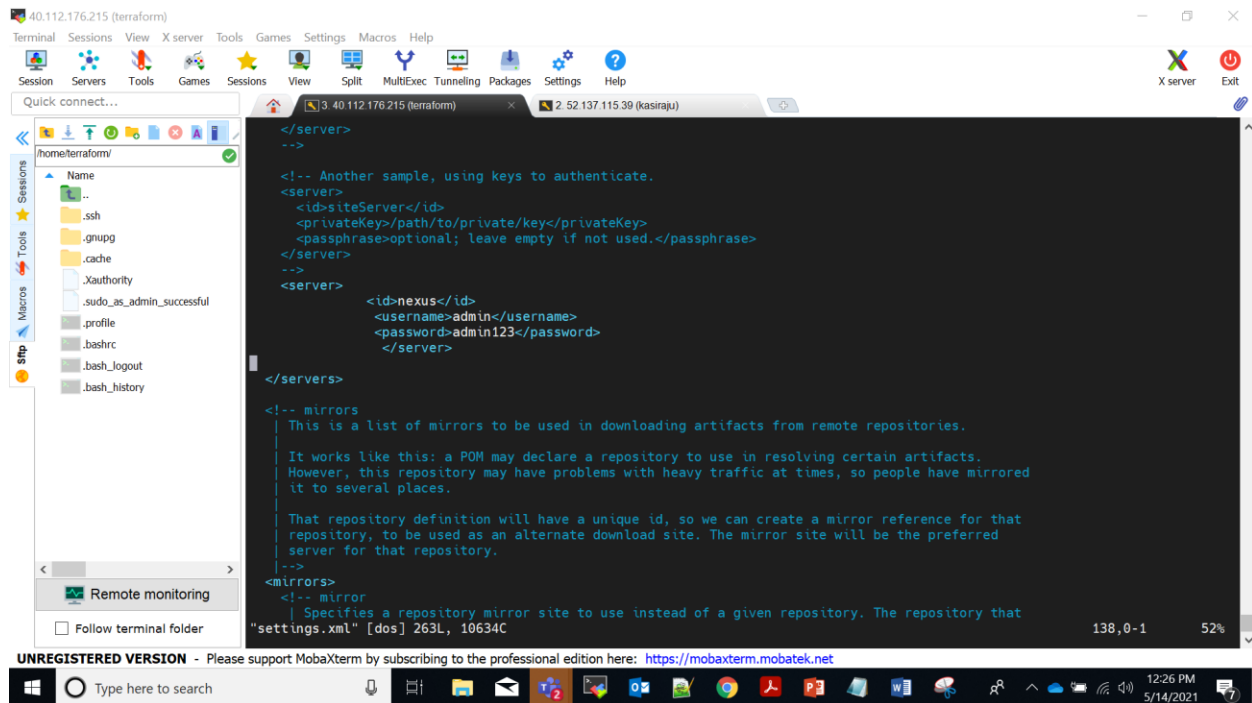
```

Then go to your browser and hit on <http://40.112.176.215:8081/nexus> then you redirect to below page.



Open mobaXterm then go to maven config folder

`Cd /opt/maven/conf/ vi settings.xml`



In the servers tage write the server details of nexus shown below

<server>

<id>nexus</id>

<username>admin</username>

<password>admin123</password>

</server>

</servers>

Now I am creating pipeline script which is clone the source from the github.com and it goto automatic and code quality analysis and quality gate status and deploying the artifact in repository is called nexus

Open the pom.xml and add the required sonarqube credential as shown below

myTF x Terra x Powe x agen x Inde x Azur x Dash x parki x Nexu x parki x Firef x +

github.com/Gkasiraju/parking_backend/blob/master/pom.xml

122 lines (117 slocc) 3.41 KB

Raw Blame

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <project xmlns="http://maven.apache.org/POM/4.0.0"
3   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4   xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-4.0.0.xsd">
5   <modelVersion>4.0.0</modelVersion>
6   <parent>
7     <groupId>org.springframework.boot</groupId>
8     <artifactId>spring-boot-starter-parent</artifactId>
9     <version>2.1.7.RELEASE</version>
10    <relativePath />
11  </parent>
12  <groupId>com.hcl</groupId>
13  <artifactId>parking</artifactId>
14  <version>0.0.4-SNAPSHOT</version>
15  <name>parking</name>
16  <description>Demo project for Spring Boot</description>
17
18  <properties>
19    <java.version>1.8</java.version>
20    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
21    <sonar.host.url>http://40.112.176.215:9000</sonar.host.url>
22    <sonar.login>admin</sonar.login>
23    <sonar.password>admin123</sonar.password>
24  </properties>
25
26  <dependencies>
27    <dependency>
```

Type here to search

5:15 PM 5/14/2021

myTF x Terra x Powe x agen x Inde x Azur x Dash x parki x Nexu x parki x Firef x +

github.com/Gkasiraju/parking_backend/blob/master/pom.xml

```
74     <version>2.9.2</version>
75   </dependency>
76   <dependency>
77     <groupId>com.twilio.sdk</groupId>
78     <artifactId>twilio</artifactId>
79     <version>7.41.2</version>
80   </dependency>
81 </dependencies>
82 <distributionManagement>
83   <snapshotRepository>
84     <id>nexus</id>
85     <url>http://40.112.176.215:8081/nexus/content/repositories/snapshots</url>
86   </snapshotRepository>
87   <repository>
88     <id>nexus</id>
89     <url>http://40.112.176.215:8081/nexus/content/repositories/releases</url>
90   </repository>
91 </distributionManagement>
92
93 <build>
94   <plugins>
95     <plugin>
96       <groupId>org.springframework.boot</groupId>
97       <artifactId>spring-boot-maven-plugin</artifactId>
98     </plugin>
99     <plugin>
100       <groupId>org.jacoco</groupId>
101       <artifactId>jacoco-maven-plugin</artifactId>
102       <version>0.8.7</version>
103     </plugin>
104   </plugins>
105 </build>
```

Type here to search

5:16 PM 5/14/2021

pipeline {
 agent any
 stages {

```
stage('SCM Checkout') {
steps {
git 'https://github.com/Gkasiraju/parking_backend.git'
}
}
stage ('Publish Unit Test Report')
{ steps {
sh '/opt/maven/bin/mvn verify -Dmaven.test.skip=true'
junit allowEmptyResults: true, testResults: '**/target/surefire-reports/*.xml'
}
}
stage ('Build && SonarQube analysis') {
steps {
withSonarQubeEnv('sonar'){
sh '/opt/maven/bin/mvn clean package sonar:sonar -Dsonar.password=admin123 -Dsonar.login=admin
-Dmaven.test.skip=true'
}
}
}
stage('Quality Gate'){
steps {
timeout(time: 1, unit: 'HOURS'){
waitForQualityGate abortPipeline: true
}
}
}
stage ('Artifact-Deployment') {
steps {
sh '/opt/maven/bin/mvn clean deploy -Dmaven.test.skip=true'
```

```

}
}
stage('Release') {
  steps {
    sh 'export JENKINS_NODE_COOKIE=dontkillme ;nohup java -jar $WORKSPACE/target/*.jar &'
  }
}
stage('jar download'){
  steps{
    sh 'wget
"http://40.112.176.215:8081/nexus/service/local/artifact/maven/content?r=snapshots&g=com.hcl&a=parking&v=LATEST&p=jar" --content-disposition'

    // sh 'wget
"http://40.112.176.215:8081/service/local/artifact/maven/redirect?g=com.hcl&a=parking&v=LATEST"

    //--content-disposition

    sh 'wget
"http://40.112.176.215:8081/nexus/service/local/artifact/maven/content?r=releases&g=com.hcl&a=parking&v=LATEST&p=jar" --content-disposition'
  }
}
}
}
}

```

Add sonarqube server

```

<properties>
    <java.version>1.8</java.version>
    <project.build.sourceEncoding>UTF-
8</project.build.sourceEncoding>
    <sonar.host.url>http://40.112.176.215:9000</sonar.host.url>
    <sonar.login>admin</sonar.login>
    <sonar.password>admin123</sonar.password>
</properties>

```

In pom.xml add this one

```
<distributionManagement>
```

```
<snapshotRepository>
```

```
<id>nexus</id>
```

```
<url>http://40.112.176.215:8081/nexus/content/repositories/snapshots</url>
```

```
</snapshotRepository>
```

```
</repository>
```

```
<id>nexus</id>
```

```
<url>http://40.112.176.215:8081/nexus/content/repositories/releases</url>
```

```
</repository>
```

```
</distributionManagement>
```

Dashboard > Parking_backend-jar >

General Build Triggers Advanced Project Options **Pipeline**

Pipeline script

Script

```
1 pipeline {
2   agent any
3   stages {
4     stage('SCM Checkout') {
5       steps {
6         git 'https://github.com/Gkasiraju/parking_backend.git'
7       }
8     }
9     stage('Publish Unit Test Report')
10    { steps {
11      sh '/opt/maven/bin/mvn verify -Dmaven.test.skip=true'
12      junit allowEmptyResults: true, testResults: '**/target/surefire-reports/*.xml'
13    }
14  }
15  stage('Build & SonarQube analysis') {
16    steps {
17      withSonarQubeEnv('sonar'){
18        sh '/opt/maven/bin/mvn clean package sonar:sonar -Dsonar.password=admin123 -Dsonar.login=admin -Dmaven.test.skip=true'
19      }
20    }
21  }
22  stage('Quality Gate'){
23    steps {
24      timeout(time: 1, unit: 'HOURS'){
25        waitForQualityGate abortPipeline: true
26      }
27    }
28  }
29 }
```

Save Apply

Type here to search

3:51 PM 5/14/2021

myT | Terr | Pow | G | ager | Inde | Azu | f x | Dist | Sec | Nex | mvr | Rep | Doc | Fire | Wor | Wor | +

Not secure | 40.112.176.215:9080/job/Parking_backend-jar/15/consoleFull

Apps | Maps | Overview - Billing -... | apache maven in 5... | AZ-900 Microsoft A... | Microsoft Certified... | bharathreddicherla... | Powershell Tutorial... | Quickstart Center -...

Dashboard > Parking_backend-jar > #15

50400K	.....	98%	179M	0s
50450K	.....	98%	182M	0s
50500K	.....	98%	167M	0s
50550K	.....	99%	181M	0s
50600K	.....	99%	176M	0s
50650K	.....	99%	189M	0s
50700K	.....	99%	153M	0s
50750K	.....	99%	184M	0s
50800K	.....	99%	176M	0s
50850K	.....	99%	154M	0s
50900K	.....	99%	3.22M	0s
50950K	.....	99%	162M	0s
51000K	.....	99%	147M	0s
51050K	.....	100%	177M	1.9s

2021-05-14 09:26:35 (26.0 MB/s) - 'parking-0.0.4.jar.1' saved [52324586/52324586]

```
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

REST API | Jenkins 2.277.4

Type here to search

myT | Terr | Pow | G | ager | Inde | Azu | Park | Dist | f x | Nex | mvr | Rep | Doc | Fire | Wor | Wor | +

Not secure | 40.112.176.215:9000/dashboard?id=com.hcl%3Aparking

Apps | Maps | Overview - Billing -... | apache maven in 5... | AZ-900 Microsoft A... | Microsoft Certified... | bharathreddicherla... | Powershell Tutorial... | Quickstart Center -...

sonarqube | Projects | Issues | Rules | Quality Profiles | Quality Gates | Administration

Search for projects...

parking | master

Last analysis had 1 warning | May 14, 2021, 2:55 PM | Version 0.0.4-SNAPSHOT

Overview | Issues | Security Hotspots | Measures | Code | Activity

Project Settings | Project Information

QUALITY GATE STATUS

Passed

All conditions passed.

MEASURES

New Code

Since 0.0.4

Started 59 minutes ago

Overall Code

0 New Bugs

Reliability A

0 New Vulnerabilities

Security A

0 New Security Hotspots

Reviewed

Security Review A

Type here to search

myT Terra Powe ager Inde Azur Park Dist Nex mvr Rep Doc Fire Wor Wor +

Not secure | 40.112.176.215:9000/admin/webhooks

Apps Maps Overview - Billing -... apache maven in 5... AZ-900 Microsoft A... Microsoft Certified... bharathreddicherla... Powershell Tutorial... Quickstart Center -...

sonarqube Projects Issues Rules Quality Profiles Quality Gates Administration ? Search for projects... A

Administration

Configuration Security Projects System Marketplace

Webhooks

Create

Webhooks are used to notify external services when a project analysis is done. An HTTP POST request including a JSON payload is sent to each of the provided URLs. Learn more in the [Webhooks documentation](#).

Name	URL	Secret?	Last delivery
sonarqube	http://40.112.176.215:9080/sonarqube-webhook/	No	May 14, 2021, 2:56 PM

1

Embedded database should be used for evaluation purposes only
The embedded database will not scale, it will not support upgrading to newer versions of SonarQube, and there is no support for migrating your data out of it into a different database engine.

SonarQube™ technology is powered by SonarSource SA
Community Edition - Version 8.9 (build 43852) - LGPL v3 - Community - Documentation - Plugins - Web API - About

Type here to search

3:52 PM 5/14/2021

myT Terra Powe ager Inde Azur Dash parki Nex Gkasi Firef +

Not secure | 40.112.176.215:9000/dashboard?id=com.hcl%3Aparking

Apps Maps Overview - Billing -... apache maven in 5... AZ-900 Microsoft A... Microsoft Certified... bharathreddicherla... Powershell Tutorial... Quickstart Center -...

sonarqube Projects Issues Rules Quality Profiles Quality Gates Administration ? Search for projects... A

parking master

Last analysis had 1 warning May 14, 2021, 2:55 PM Version 0.0.4-SNAPSHOT

Overview Issues Security Hotspots Measures Code Activity Project Settings Project Information

QUALITY GATE STATUS

Passed
All conditions passed.

MEASURES

New Code
Since 0.0.4
Started 2 hours ago

Overall Code

0 New Bugs

Reliability A

0 New Vulnerabilities

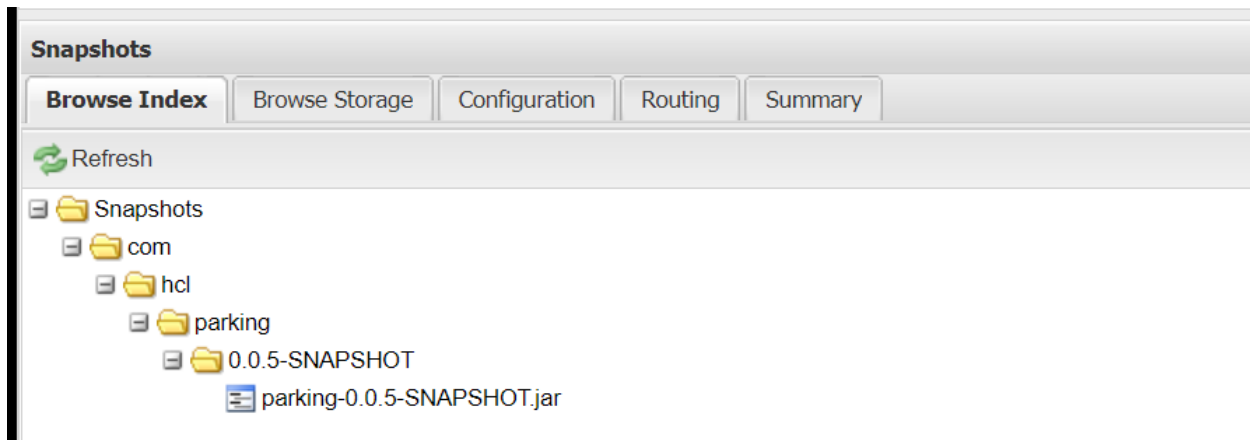
Security A

0 New Security Hotspots

Reviewed Security Review A

Type here to search

5:06 PM 5/14/2021



This shows when you successfully build a snapshot release. Then I write extra snippet that is downloaded into my workspace. If we rebuild it, it will take the latest version of snapshot.

```
root@5ccd9b0cd2a4:/var/jenkins_home/workspace/Parking_backend-jar# ls
Dockerfile      parking-0.0.1-20210514.090907-1.jar  parking-0.0.4.jar  README.md
hs_err_pid4956.log parking-0.0.1-20210514.090907-1.jar.1 parking-0.0.4.jar.1 src
hs_err_pid6508.log parking-0.0.3.jar                    parking-0.0.5-20210514.090653-12.jar target
Jenkinsfile     parking-0.0.4-20210514.092627-1.jar  pom.xml
root@5ccd9b0cd2a4:/var/jenkins_home/workspace/Parking_backend-jar#
```

Now it's time to release. Do some changes in pom.xml, change the version **snapshot to release**.

