Experiment 9
Installation + Configuration (Nexus)

Nexus Repository is an **OpenSource repository** which supports various artifact formats, including Docker, Java and npm. With the help of Nexus, pipelines can be published and retrieved and their dependencies can be managed by using central repositories that are accessible from other environments.

Installing Nexus in Linux

Pre-Requisites

1) Java installed
2) Our machine configured with a non-root sudo user.

Installing Java8

1) First update the package indexes using the command,
```
sudo apt update
```
2) Install java using the following commands,
```
sudo apt-get install default-jre
sudo apt-get install default-jdk
```

In case we have multiple versions of Java installed we can configure them using the command
```
sudo update-alternatives --config java
```

Installing Jenkins

1) We need to download the Nexus repository in our device which can be downloaded using the following commands,
```
cd /opt
sudo  wget https://sonatype-download.global.ssl.fastly.net/repository/repositoryManager/3/nexus-3.16.1-02-unix.tar.gz
sudo  tar -zxvf nexus-3.16.1-02-unix.tar.gz
sudo  mv /opt/nexus-3.16.1-02 /opt/nexus
```

2) It is not a good practice to run the Nexus services as a root user so we will use create a user named Nexus for the same purpose and will grant it sudo access.,
```
sudo echo "nexus   ALL=(ALL)       NOPASSWD: ALL" >> visudo
```

3) Set the password for the nexus user to be null using the command,
```
sudo apt update
```

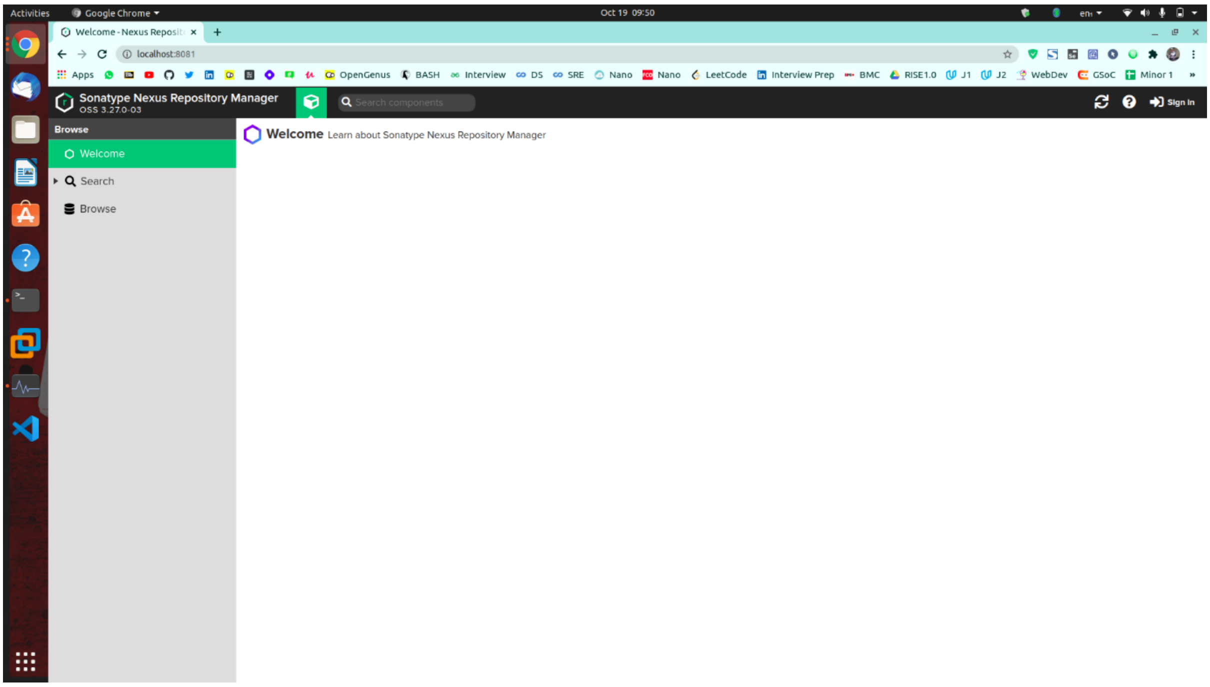
4) Change the owner and the file settings,
```
sudo chown -R nexus:nexus /opt/nexus
sudo chown -R nexus:nexus /opt/sonatype-work
```

5) Add nexus services to run at boot time,
```
sudo echo 'run_as_user="nexus"' > /opt/nexus/bin/nexus.rc
sudo ln -s /opt/nexus/bin/nexus /etc/init.d/nexus
```

6) Login as nexus user and start the services,

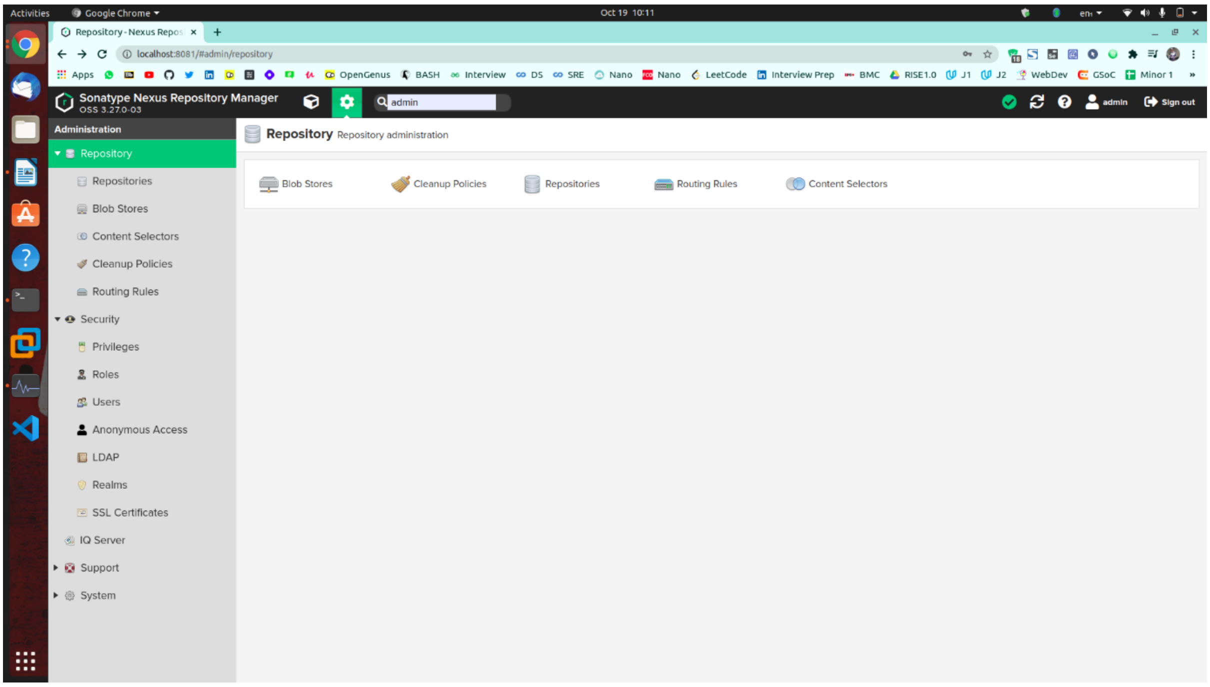
```
su - nexus
/etc/init.d/nexus start
```

For local devices the IP used will be 127.0.0.1:8081
The nexus services will be available on 8081 port on our IP

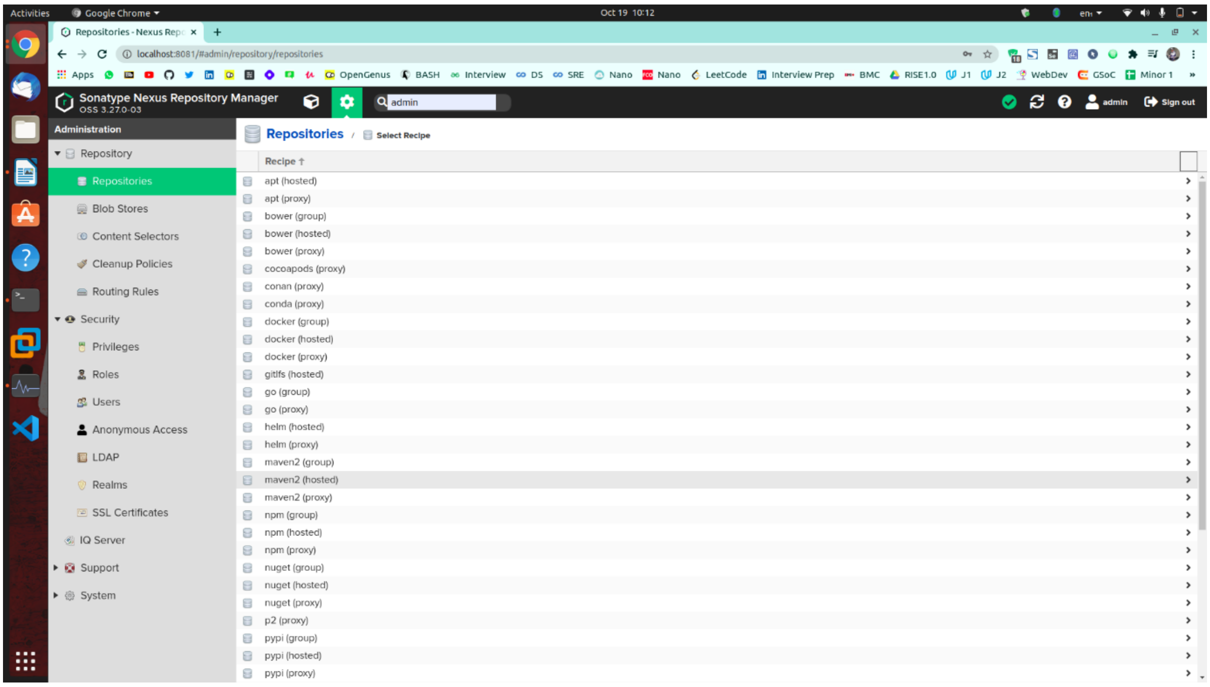


Creating first Nexus Project

1) Login and set password for Nexus repository.

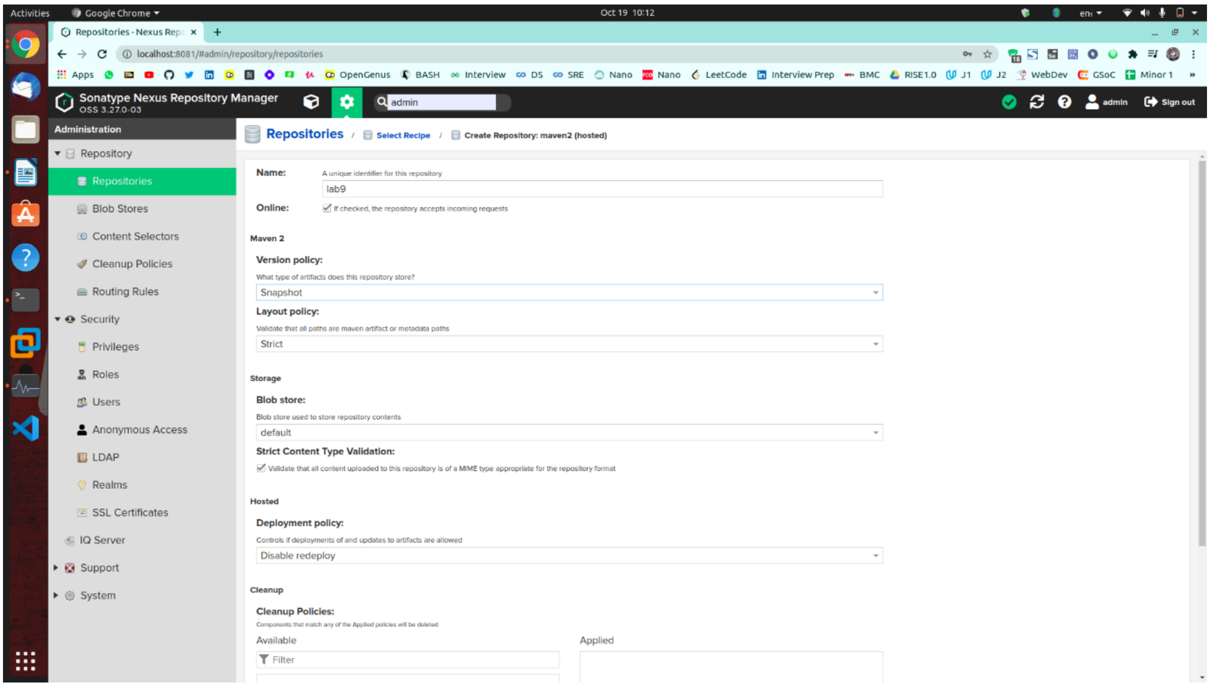


2) Create a ***maven2 (hosted)*** repository.



Recipe ↑
apt (hosted)
apt (proxy)
bower (group)
bower (hosted)
bower (proxy)
cocoapods (proxy)
conan (proxy)
conda (proxy)
docker (group)
docker (hosted)
docker (proxy)
gitlfs (hosted)
go (group)
go (proxy)
helm (hosted)
helm (proxy)
maven2 (group)
maven2 (hosted)
maven2 (proxy)
npm (group)
npm (hosted)
npm (proxy)
nuget (group)
nuget (hosted)
nuget (proxy)
p2 (proxy)
pypi (group)
pypi (hosted)
pypi (proxy)

3) Define the settings for the maven hosted repository.



Repositories / Select Recipe / Create Repository: maven2 (hosted)

Name: A unique identifier for this repository
lab9

Online: ☑ If checked, the repository accepts incoming requests

Maven 2

Version policy:
What type of artifacts does this repository store?
Snapshot

Layout policy:
Validate that all paths are maven artifact or metadata paths
Strict

Storage

Blob store:
Blob store used to store repository contents
default

Strict Content Type Validation:
☑ Validate that all content uploaded to this repository is of a MIME type appropriate for the repository format

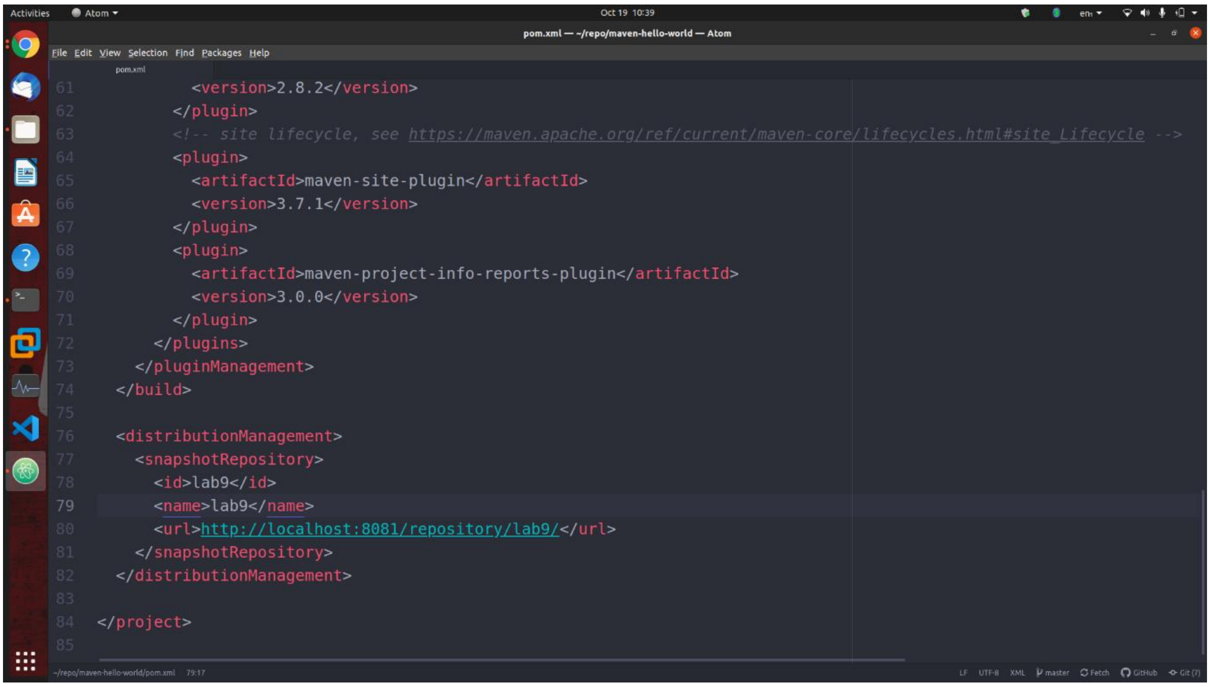
Hosted

Deployment policy:
Controls if deployments of and updates to artifacts are allowed
Disable redeploy

Cleanup

Cleanup Policies:
Components that match any of the Applied policies will be deleted
Available
Filter
Applied

4) Add the settings to pom.xml of the project.

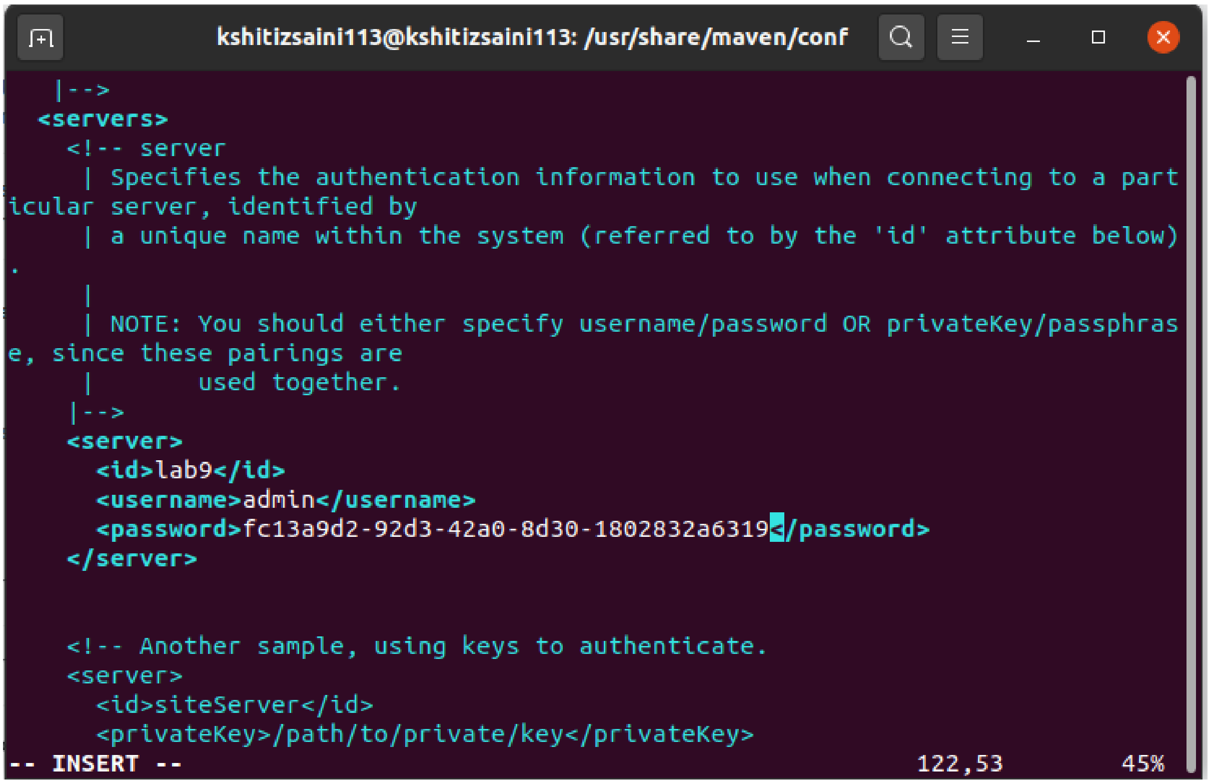


```
          <version>2.8.2</version>
        </plugin>
        <!-- site lifecycle, see https://maven.apache.org/ref/current/maven-core/lifecycles.html#site_Lifecycle -->
        <plugin>
          <artifactId>maven-site-plugin</artifactId>
          <version>3.7.1</version>
        </plugin>
        <plugin>
          <artifactId>maven-project-info-reports-plugin</artifactId>
          <version>3.0.0</version>
        </plugin>
      </plugins>
    </pluginManagement>
  </build>

  <distributionManagement>
    <snapshotRepository>
      <id>lab9</id>
      <name>lab9</name>
      <url>http://localhost:8081/repository/lab9/</url>
    </snapshotRepository>
  </distributionManagement>

</project>
```

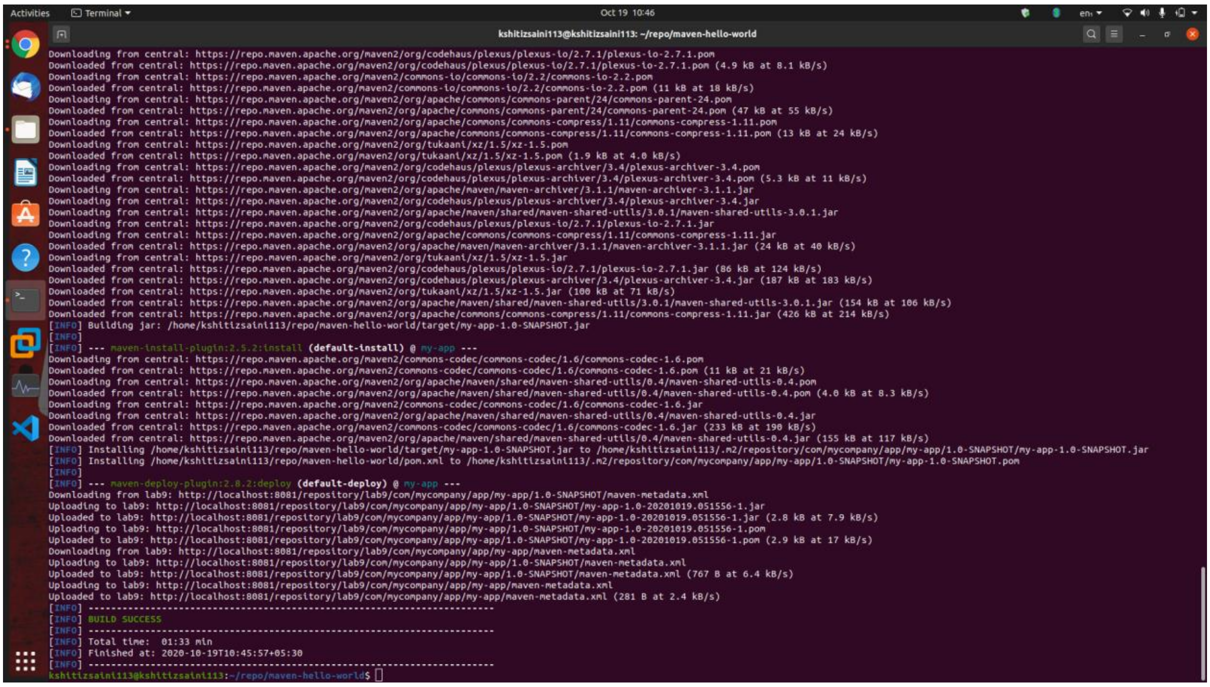
5) Add the configuration for the maven repository on the maven configuration file.



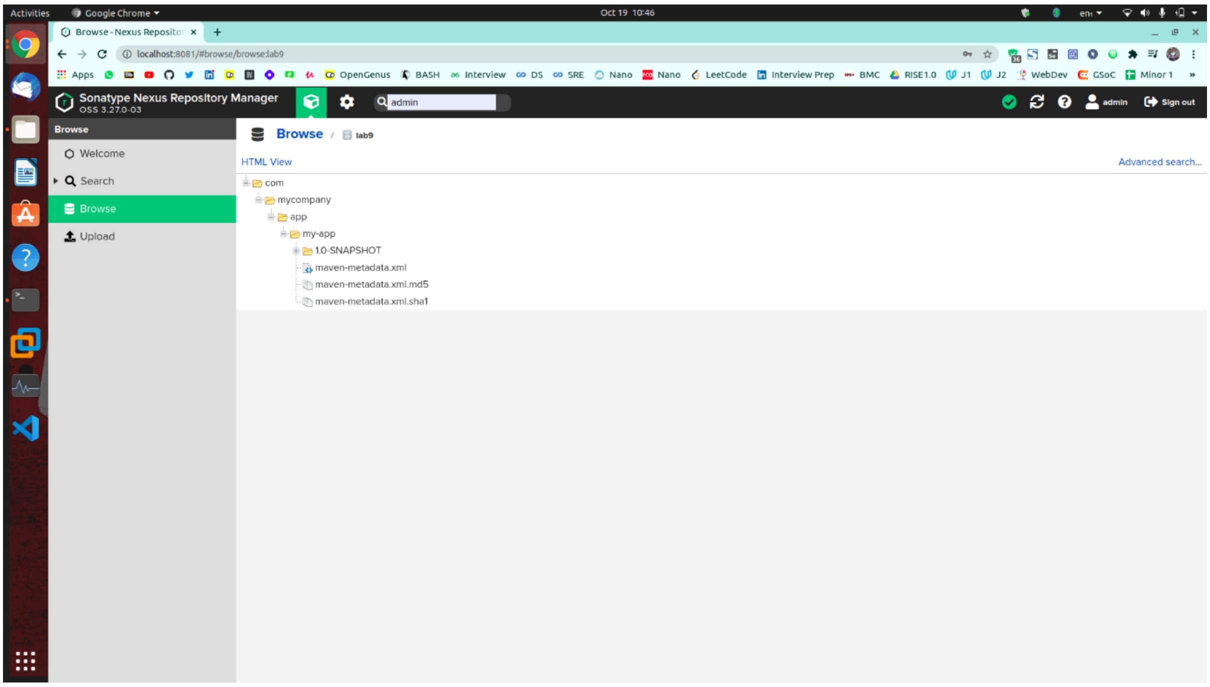
```
   |-->
  <servers>
    <!-- server
     | Specifies the authentication information to use when connecting to a part
icular server, identified by
     | a unique name within the system (referred to by the 'id' attribute below)
.
     |
     | NOTE: You should either specify username/password OR privateKey/passphras
e, since these pairings are
     |       used together.
    |-->
    <server>
      <id>lab9</id>
      <username>admin</username>
      <password>fc13a9d2-92d3-42a0-8d30-1802832a6319</password>
    </server>


    <!-- Another sample, using keys to authenticate.
    <server>
      <id>siteServer</id>
      <privateKey>/path/to/private/key</privateKey>
-- INSERT --                                                  122,53        45%
```

6) Run the mvn deploy goal and the artifact will be available on the maven repository.



```
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-io/2.7.1/plexus-io-2.7.1.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-io/2.7.1/plexus-io-2.7.1.pom (4.9 kB at 8.1 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.2/commons-io-2.2.pom
Downloaded from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.2/commons-io-2.2.pom (11 kB at 18 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-parent/24/commons-parent-24.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-parent/24/commons-parent-24.pom (47 kB at 55 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-compress/1.11/commons-compress-1.11.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-compress/1.11/commons-compress-1.11.pom (13 kB at 24 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/tukaani/xz/1.5/xz-1.5.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/tukaani/xz/1.5/xz-1.5.pom (1.9 kB at 4.0 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-archiver/3.4/plexus-archiver-3.4.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-archiver/3.4/plexus-archiver-3.4.pom (5.3 kB at 11 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-archiver/3.1.1/maven-archiver-3.1.1.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-archiver/3.4/plexus-archiver-3.4.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/3.0.1/maven-shared-utils-3.0.1.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-io/2.7.1/plexus-io-2.7.1.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-compress/1.11/commons-compress-1.11.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-archiver/3.1.1/maven-archiver-3.1.1.jar (24 kB at 40 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/tukaani/xz/1.5/xz-1.5.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-io/2.7.1/plexus-io-2.7.1.jar (86 kB at 124 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-archiver/3.4/plexus-archiver-3.4.jar (187 kB at 183 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/tukaani/xz/1.5/xz-1.5.jar (100 kB at 71 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/3.0.1/maven-shared-utils-3.0.1.jar (154 kB at 106 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-compress/1.11/commons-compress-1.11.jar (426 kB at 214 kB/s)
[INFO] Building jar: /home/kshitizsaini113/repo/maven-hello-world/target/my-app-1.0-SNAPSHOT.jar
[INFO]
[INFO] --- maven-install-plugin:2.5.2:install (default-install) @ my-app ---
Downloading from central: https://repo.maven.apache.org/maven2/commons-codec/commons-codec/1.6/commons-codec-1.6.pom
Downloaded from central: https://repo.maven.apache.org/maven2/commons-codec/commons-codec/1.6/commons-codec-1.6.pom (11 kB at 21 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/0.4/maven-shared-utils-0.4.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/0.4/maven-shared-utils-0.4.pom (4.0 kB at 8.3 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/commons-codec/commons-codec/1.6/commons-codec-1.6.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/0.4/maven-shared-utils-0.4.jar
Downloaded from central: https://repo.maven.apache.org/maven2/commons-codec/commons-codec/1.6/commons-codec-1.6.jar (233 kB at 190 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/0.4/maven-shared-utils-0.4.jar (155 kB at 117 kB/s)
[INFO] Installing /home/kshitizsaini113/repo/maven-hello-world/target/my-app-1.0-SNAPSHOT.jar to /home/kshitizsaini113/.m2/repository/com/mycompany/app/my-app/1.0-SNAPSHOT/my-app-1.0-SNAPSHOT.jar
[INFO] Installing /home/kshitizsaini113/repo/maven-hello-world/pom.xml to /home/kshitizsaini113/.m2/repository/com/mycompany/app/my-app/1.0-SNAPSHOT/my-app-1.0-SNAPSHOT.pom
[INFO]
[INFO] --- maven-deploy-plugin:2.8.2:deploy (default-deploy) @ my-app ---
Downloading from lab9: http://localhost:8081/repository/lab9/com/mycompany/app/my-app/1.0-SNAPSHOT/maven-metadata.xml
Uploading to lab9: http://localhost:8081/repository/lab9/com/mycompany/app/my-app/1.0-SNAPSHOT/my-app-1.0-20201019.051556-1.jar
Uploaded to lab9: http://localhost:8081/repository/lab9/com/mycompany/app/my-app/1.0-SNAPSHOT/my-app-1.0-20201019.051556-1.jar (2.8 kB at 7.9 kB/s)
Uploading to lab9: http://localhost:8081/repository/lab9/com/mycompany/app/my-app/1.0-SNAPSHOT/my-app-1.0-20201019.051556-1.pom
Uploaded to lab9: http://localhost:8081/repository/lab9/com/mycompany/app/my-app/1.0-SNAPSHOT/my-app-1.0-20201019.051556-1.pom (2.9 kB at 17 kB/s)
Downloading from lab9: http://localhost:8081/repository/lab9/com/mycompany/app/my-app/maven-metadata.xml
Uploading to lab9: http://localhost:8081/repository/lab9/com/mycompany/app/my-app/1.0-SNAPSHOT/maven-metadata.xml
Uploaded to lab9: http://localhost:8081/repository/lab9/com/mycompany/app/my-app/1.0-SNAPSHOT/maven-metadata.xml (767 B at 6.4 kB/s)
Uploading to lab9: http://localhost:8081/repository/lab9/com/mycompany/app/my-app/maven-metadata.xml
Uploaded to lab9: http://localhost:8081/repository/lab9/com/mycompany/app/my-app/maven-metadata.xml (281 B at 2.4 kB/s)
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  01:33 min
[INFO] Finished at: 2020-10-19T10:45:57+05:30
[INFO] ------------------------------------------------------------------------
kshitizsaini113@kshitizsaini113:~/repo/maven-hello-world$ 
```



```
com
  mycompany
    app
      my-app
        1.0-SNAPSHOT
        maven-metadata.xml
        maven-metadata.xml.md5
        maven-metadata.xml.sha1
```