#### Sonatype Nexus OSS (Open Source Software)

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#### **Introduction**

Nexus is a repository manager allows to store and retrieve build artifacts.

Nexus Repository Manager is available from Sonatype, Inc. "Sonatype" and "Sonatype Nexus" are trademarks of Sonatype, Inc.

Before Stating installation need to verify the below software should install.

Java: Verify with java -version command.

Maven: Verify with mvn -version.

#### Installation

Nexus Repository Manager can be downloaded from below url.

https://www.sonatype.com/download-oss-sonatype

#### Windows

Download the Windows version of Nexus repository.

## **Nexus Repository Manager OSS 3.x**

The latest version of Nexus Repository OSS, providing cutting-edge support for the formats below.

Note: More information can be found in the documentation, release notes, upgrade notes and the Support Knowledge Base.

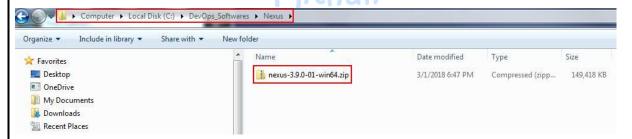
## Manage these formats:

✓ Bower	✓ Docker	✓ Git LFS	✓ Maven	✓ npm	✓ NuGet
✔ PyPI	✓ Ruby Gems	✓ Yum Proxy /	✓ Apt*	✓ Conan*	<b>✔</b> R*
		Host			
✓ CPAN*	✓ Raw (Universal)	<b>✓</b> P2*			

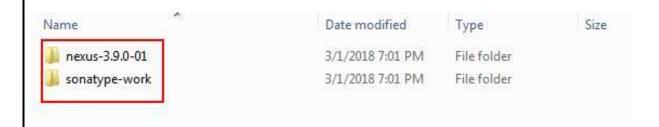
## **Choose your Nexus:**

Nexus Repository Manager OSS 3.x - <b>OS X</b>	ASC	MD5	SHA1
Nexus Repository Manager OSS 3.x - Windows	ASC	MD5	SHA1
Nexus Repository Manager OSS 3.x - Unix	ASC	MD5	SHA1

Copy downloaded software (nexus-3.8.0-02-win64.zip) into one directory (C:\DevOps\_Softwares\Nexus) .



Extract the zip file. Once you extract the zip file you will see the 2 directories.



<sup>\*</sup> Available from the Nexus Exchange Community

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Open the command prompt as Administrator and go to the directory (C:\DevOps\_Softwares\Nexus\nexus-3.9.0-01\bin) where you have copied nexus software(nexus-3.8.0-02-win64.zip).

```
Administrator: C:\Windows\System32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.
C:\windows\system32>cd C:\DevOps_Softwares\Nexus\nexus-3.9.0-01-win64\nexus-3.9.0-01\bin
C:\DevOps_Softwares\Nexus\nexus-3.9.0-01-win64\nexus-3.9.0-01\bin>
```

Start the Nexus repository server as follows.

Execute the below command.

nexus.exe /run

```
C:\DevOps_Softwares\Nexus\nexus-3.9.0-01-win64\nexus-3.9.0-01\bin nexus.exe /run
Preparing JRE ...
```

Once it started successfully, you will see below output.

#### Mac

Download the Mac version of Nexus repository.

### **Nexus Repository Manager OSS 3.x**

The latest version of Nexus Repository OSS, providing cutting-edge support for the formats below.

Note: More information can be found in the documentation, release notes, upgrade notes and the Support Knowledge Base.

## Manage these formats:

✓ Bower	✓ Docker	✓ Git LFS	✓ Maven	✓ npm	✓ NuGet
<b>✔</b> PyPI	✓ Ruby Gems	✓ Yum Proxy /	✓ Apt*	✓ Conan*	<b>✓</b> R*
		T-T-C-C-R			

<sup>✓</sup> CPAN\* ✓ Raw (Universal) ✓ P2\*

## **Choose your Nexus:**

Nexus Repository Manager OSS 3.x - <b>OS X</b>	ASC	MD5	SHA1
Nexus Repository Manager OSS 3.x - Windows	ASC	MD5	SHA1
Nexus Repository Manager OSS 3.x - <b>Unix</b>	ASC	MD5	SHA1

Copy downloaded software (nexus-3.7.1-02-mac.tgz) into one directory and extract it.

Go to the directory where you have copied nexus software(nexus-3.7.1-02-mac.tgz) and extract it using the below commands.

#gunzip nexus-3.7.1-02-mac.tgz

#tar xvf nexus-3.7.1-02-mac.tar

Start the Nexus repository server as follows.

#cd NEXUS HOME/bin

#./nexus start (OR) ./nexus run (OR) ./nexus \run ----> Mac/Linux

http://mithuntechnologies.com

<sup>\*</sup> Available from the Nexus Exchange Community

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Bhaskars-MacBook-Air:bin bhask

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Bhaskars-MacBook-Air:bin bhaskarreddyl\$ ./nexus start

Bhaskars-MacBook-Air:bin bhaskarreddyl\$

(OR)

Bhaskars-MacBook-Air:bin bhaskarreddyl\$ ./nexus \run

(OR)

Bhaskars-MacBook-Air:bin bhaskarreddyl\$ ./nexus run

Nexus Repository Manager is a Java application that requires a Java Runtime Environment. When you start the repository manager, It runs within a servlet container called Eclipse Jetty, and it is started with a native service wrapper called the Tanuki Java Service Wrapper.

Once the nexus repository manager has been started, its web interface can be accessed under this URL:

http://localhost:8081/ ---> 3.x Releases http://localhost:8081/nexus ---> 2.x Releases

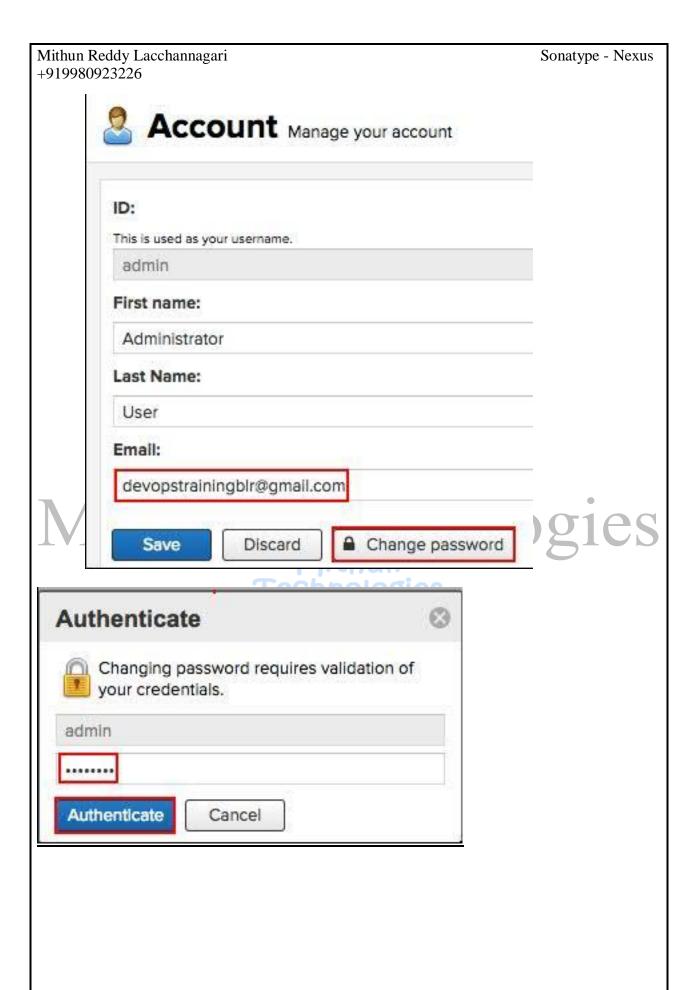
The default credentials are admin/admin123.

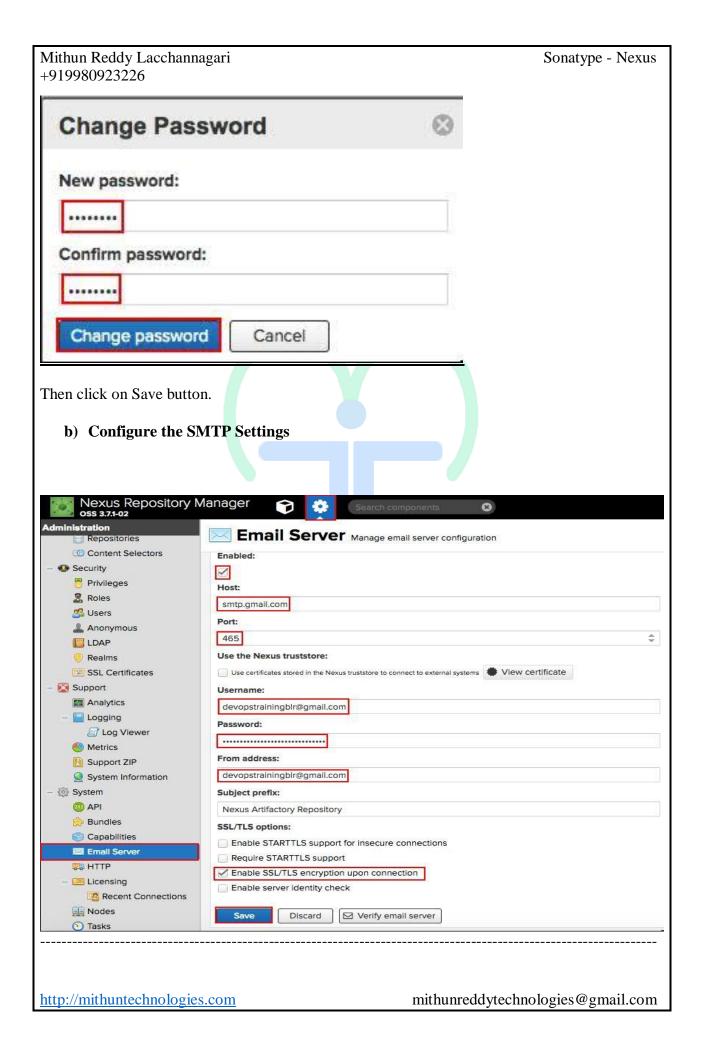
Nexus Repository 2.14.5 is now available with support for upgrading to Nexus Repository Manager 3.5.0 or higher.

Once you installed successfully, do the below changes.

a) Change the Administrative Email and Password as follows.

Click on username (admin, on right side top corner) and update the email as follows.





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#### **Nexus Directory structure**

The installation directory having below directories:

bin

deploy

etc

lib

public

system

bin: contains the nexus startup script itself as well as startup-related configuration files.

etc: contains configuration files.

**lib:** contains binary libraries related to Apache Karaf. **public:** contains public resources of the application.

system: contains all components and plugins that constitute the application.

#### **Data Directory**

The data directory, found by default at ../sonatype-work/nexus3, includes subdirectories that contain all the components, repositories, configurations and other data presented by the repository manager. The subdirectories are listed as:

#### blobs/

This is the default location of the blob store. If you provided a fully qualified path when creating a new blob store, it may not end up in this directory.

#### cache/

This directory contains information on currently cached Karaf bundles

#### db/

This directory contains the OrientDB databases which are the primary storage for your repository manager's metadata

#### elasticsearch/

This directory contains the currently configured state of Elasticsearch

#### etc/

This directory contains the main runtime configuration and customization of the repository manager. The files are explained further in <u>Configuring the Runtime Environment</u>.

#### health-check/

This directory contains cached reports from the Repository Health Check feature

#### keystores/

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This contains the automatically generated key used to identify your repository manager

log/

This directory contains several log files that capture information about various aspects of the running repository manager. The nexus.log and request.log files are rotated every day so this directory also contains archived copies of these files. To reclaim disk space, you can delete old log files from the logs directory. Log files found in this directory include:

**nexus.log** - The main repository manager application log. Log messages contain standard log output fields including date/time, log level, the associated thread, class and message.

- request.log Used to log http access requests to a running repository manager. Log messages contain information such as client host, user and HTTP request attributes including status code, bytes, and user-agent header.
- **jvm.log** Contains JVM stdout, stderr and thread dump messages
- karaf.log This is the Apache Karaf container log file which contains messages specific to the repository manager startup

The **log** directory also contains a **tasks** subdirectory which contains separate, uniquely named (by date, time and task name) log output files for each task that is run. See Task Logging for more details concerning naming strategy and content of these files.

tmp/

This directory is used for temporary storage

#### **How to stop the Nexus Server?**

Ans) Go to the NEXUS INSTALLATION HOME Directory and execute the below command. #./nexus stop

Bhaskars-MacBook-Air:bin bhaskarreddyl\$ ./nexus stop

Shutting down nexus

Stopped.

Bhaskars-MacBook-Air:bin bhaskarreddyl\$

(OR)

The nexus server is started with run command like ./nexus run ---> Mac/Linux nexus.exe /run ---> Windows

We will use Ctrl + c to stop the server.

#### How to change the port number?

To change the default HTTP port from 8081 to custom port, follow the below steps. Go to the etc directory and open the **nexus-default.properties** file and update the port number from 8081 to your custom port.

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application-port=8081 ---> By default port number. application-port=9090 ---> Customised port number.

-----

#### How to change the context root?

Go to the etc directory and open the <u>nexus-default.properties</u> file and update the context root as follows.

nexus-context-path=/ ---> By default context root nexus-context-path=/mithuntechnologies ---> Customised context root

Create the repositories

Nexus provides for three different kinds of repositories: Proxy Repositories, Hosted repositories, and Virtual repositories.

Mithun Technologies

What we will do:

- create a private (hosted) repository for our snapshots
- create a private (hosted) repository for our releases
- create a proxy repository pointing to Maven Central

#### snapshots repo

A repository for Maven artifacts that you deploy with -SNAPSHOT in the end of the version tag of your pom.xml:

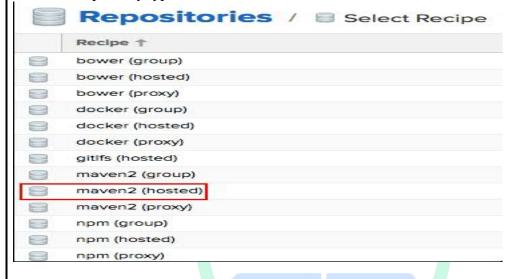
<version>1.0.0-SNAPSHOT

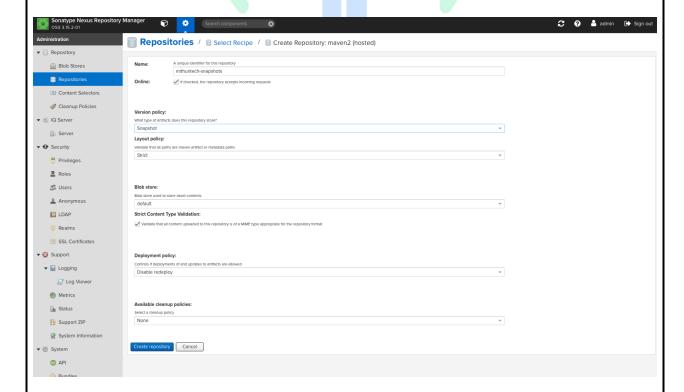
Login into Nexus repo with admin credentials and click on Administration Button expand the **Repository** and click on **Repositories** and click on Create repository.



and

Select the repository type.





#### releases repo

A repository for Maven artifact that you deploy without -SNAPSHOT in the end of the version tag of your pom.xml:

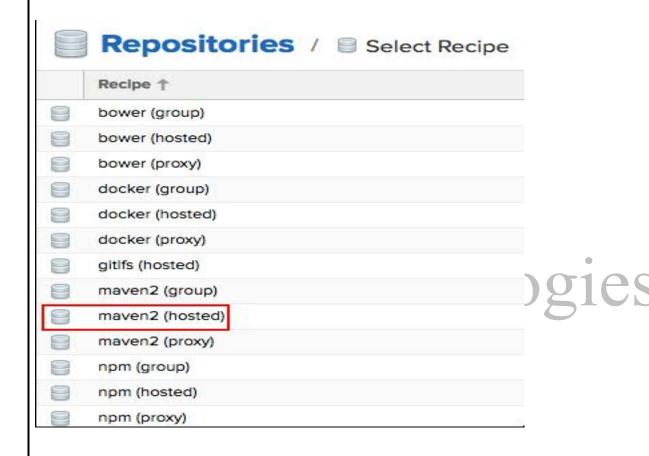
http://mithuntechnologies.com

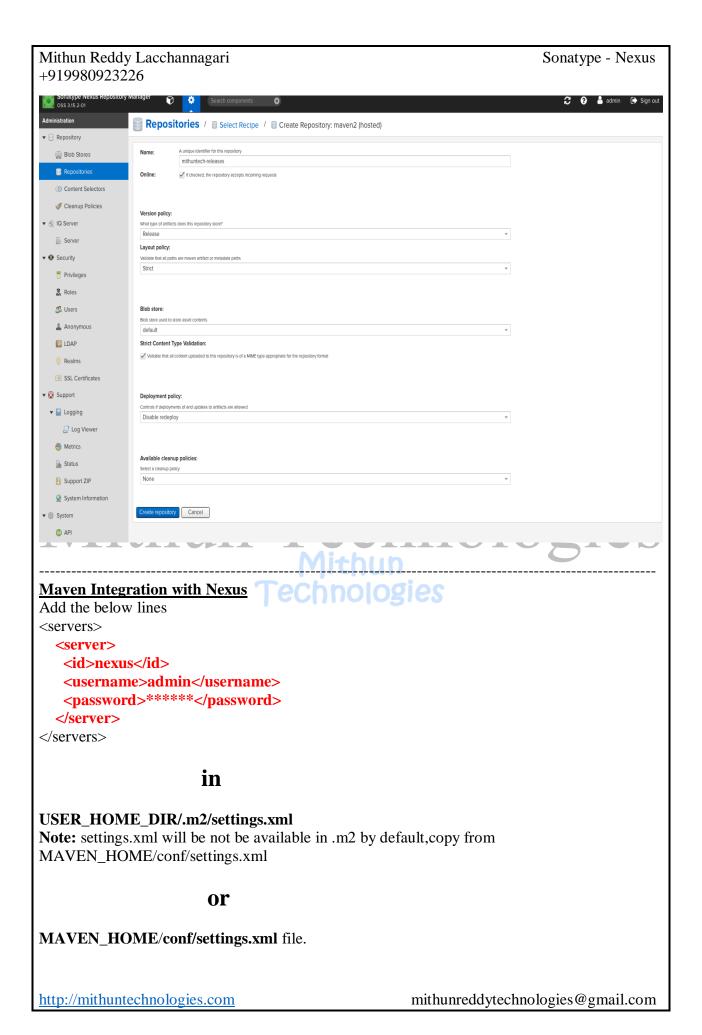
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<version>1.0.0</version>

Create a new maven (hosted) repository and configure it like:

Select the repository type.





```
Note: Here replace **** with actual password.
update the pom.xml with below lines for each application.
Note: After </dependencies> tag you can put below lines.
</distributionManagement>

<repository>
<id>nexus</id>
<name>Mithun Technologies Releases Nexus Repository</name>
<url>http://<ipAddress>:8081/repository/mithuntech-releases</url>
</repository>
<snapshotRepository>
<id>name>Mithun Technologies Snapshot Nexus Repository </name>
<url>http://<ipAddress>:8081/repository/mithuntech-snapshots</url>
</repository>
<url>http://<ipAddress>:8081/repository/mithuntech-snapshots</url>
</url>
</ri>
</rr>
</rr>
</rr>
</rr>
</rr>
</rr>
</rr>
</ra>

\( \text{snapshotRepository} \)
</distributionManagement>
```

**Note:** The "repository Id" property value is the <id> element value of a <server> section in your settings.xml file which has the credentials needed for deployment. If these credentials are not configured you will see an error like: "Return code is: 401, ReasonPhrase: Unauthorized."

# Mithun Technologies proxy to Maven Central repo Mithun

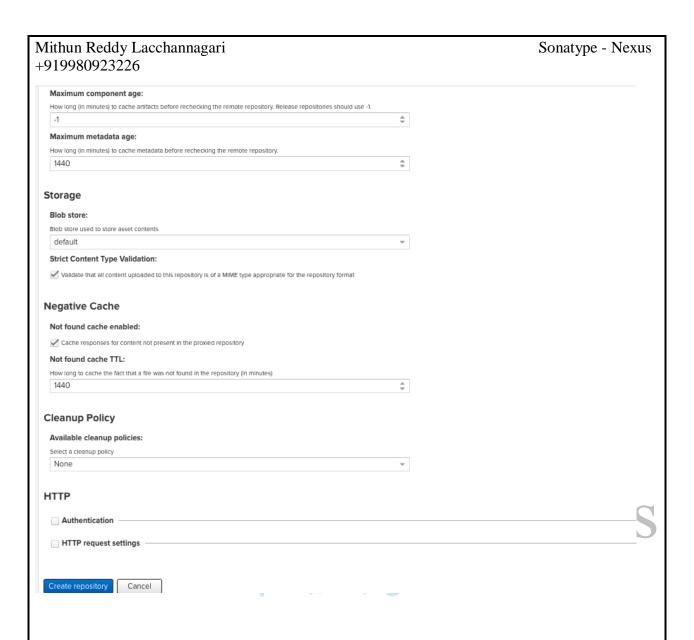
A repository that proxies everything you download from Maven Central. Next time you download the same dependency, it will be cached in your Nexus.

Create a new maven (proxy) repository and configure it like:

We'll create a new Maven proxy in the Nexus Repository Manager UI.

- 1. Open the Nexus Repository Manager user interface.
- 2. Click Administration in the top navigation menu, and then select Repositories.
- 3. Click Create repository, and then choose the maven2 (proxy) recipe from the list.
- 4. Add the following text in the required fields:
  - a. Name: maven-proxy-test
  - b. Remote storage URL: https://repo1.maven.org/maven2
- 5. Click Create repository to complete the form.

# Mithun Reddy Lacchannagari Sonatype - Nexus +919980923226 Repositories / Select Recipe / Create Repository: maven2 (proxy) A unique identifier for this repository Name: libs-proxy Online: If checked, the repository accepts incoming requests Maven 2 Version policy: What type of artifacts does this repository store? Release Layout policy: Validate that all paths are maven artifact or metadata paths Proxy Remote storage: Location of the remote repository being proxied https://repo1.maven.org/maven2 Use the Nexus truststore: ☐ Use certificates stored in the Nexus truststore to connect to external systems 🛊 View certificate Block outbound connections on the repository Auto blocking enabled: Ithun Technologies Technologies



## **Configuring your clients and projects to use your Nexus repos**

Put this in your ~/.m2/settings.xml file. This will configure the credentials to publish to your hosted repos, and will tell your mvn to use your repo as a proxy of central to download dependencies:

```
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                                                                 Sonatype - Nexus
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<?xml version="1.0" encoding="UTF-8"?>
<settings xmlns="http://maven.apache.org/SETTINGS/1.1.0"</pre>
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/SETTINGS/1.1.0
http://maven.apache.org/xsd/settings-1.1.0.xsd">
  <servers>
    <server>
      <id>central</id>
      <username>admin</username>
      <password>admin123</password>
    </server>
    <server>
      <id>snapshots</id>
      <username>admin</username>
      <password>admin123</password>
    </server>
  </servers>
cprofiles>
 cprofile>
  <id>nexus</id>
   <repositories>
    <repository>
      <id>central</id>
           <url>http://<ipAddress>:8081/repository/libs-proxy/</url>
   </repository>
  </repositories>
  <pluginRepositories>
   <pluginRepository>
     <id>central</id>
     <url>http://<ipAddress>:8081/repository/libs-proxy/</url>
   </pluginRepository>
  </pluginRepositories>
 </profile>
</profiles>
<activeProfiles>
   <activeProfile>nexus</activeProfile>
</activeProfiles>
</settings>
```

**Note:** If you don't want to configure for user level(All Maven Projects) to download dependencies from Nexus,

You want to configure Nexus Repo for specific project ,put this in the specific project pom.xml:

#### Deploy third party library to Remote Repo

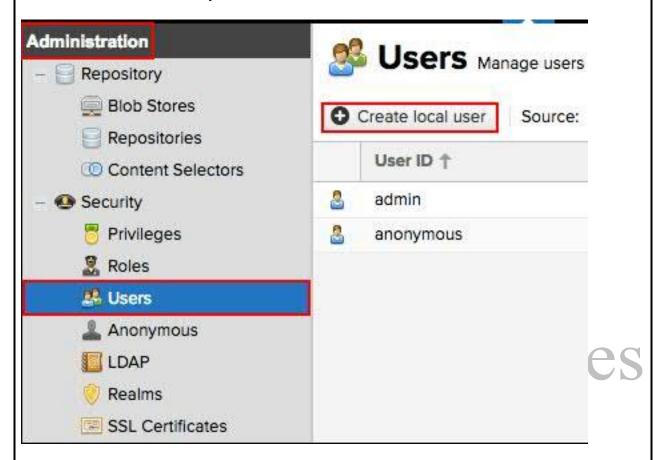
mvn deploy:deploy-file -DgroupId=com.oracle -DartifactId=ojdbc14 Dversion=ojdbc14 -DgeneratePom=true -Dpackaging=jar -DrepositoryId=central
-Durl=http://<ipAddress>:8081/repository/libs-release/ -Dfile=ojdbc14.jar

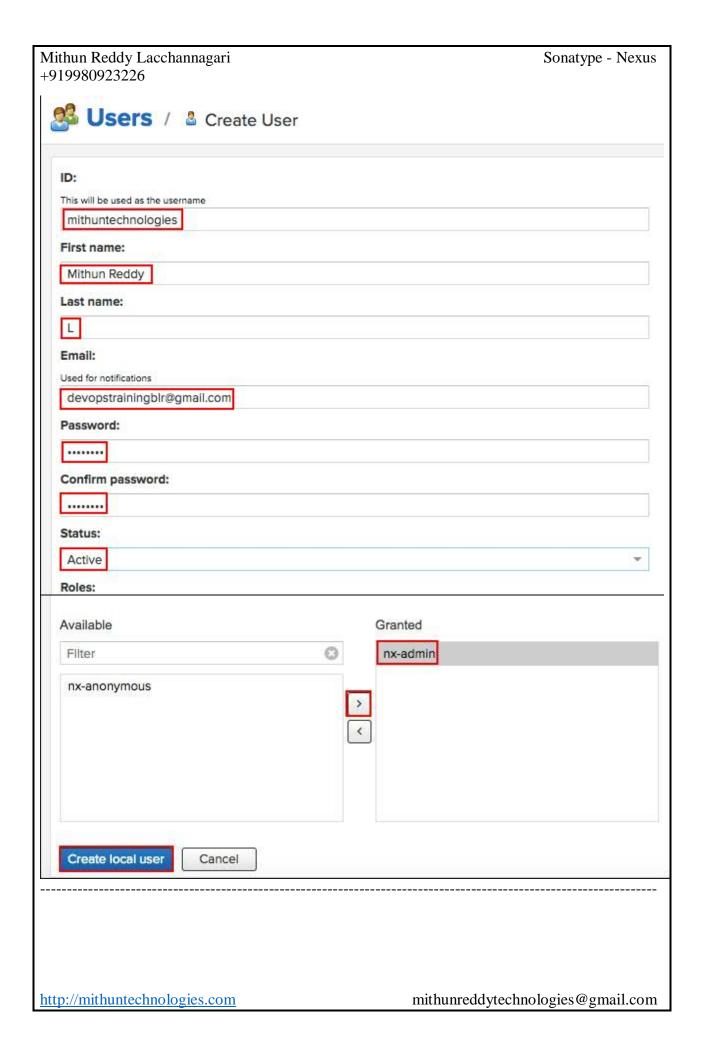
**Note:** The "repositoryld" property value is *not* a Nexus repository ID. it is the <id> element value of a <server> section in your settings.xml file which has the credentials needed for deployment. If these credentials are not configured you will see an error like: "Return code is: 401, ReasonPhrase: Unauthorized."

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#### **Create Users**

Administration ---> Security ---> Users ---> Create local user





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#### How to deploy external artifacts into nexus using command?

```
mvn deploy:deploy-file -DgroupId=junit -DartifactId=junit -Dversion=3.8.1 - DgeneratePom=true -Dpackaging=jar -DrepositoryId=nexus - Durl=http://localhost:8086/mithuntechnologies/repository/remoterepo-mithun-technologies - Dfile=/Users/bhaskarreddyl/Desktop/junit-3.8.1.jar
```

.....

#### How to use the remote repository instead of default Maven central repository?

Ans) Add below code snippet in pom.xml before <deployments> element.

```
<repositories>
   <repository>
     <id>central</id>
     <url>http://localhost:8081/repository/flipkart-group/</url>
     <releases><enabled>true</enabled></releases>
     <snapshots><enabled>true</enabled></snapshots>
   </repository>
 </repositories>
<pluginRepositories>
   <pluginRepository>
     <id>central</id>
    <url>http://localhost:8081/repository/flipkart-group/</url>
     <releases><enabled>true</enabled></releases>
     <snapshots><enabled>true</enabled></snapshots</pre>
   </pluginRepository>
 </pluginRepositories>
```

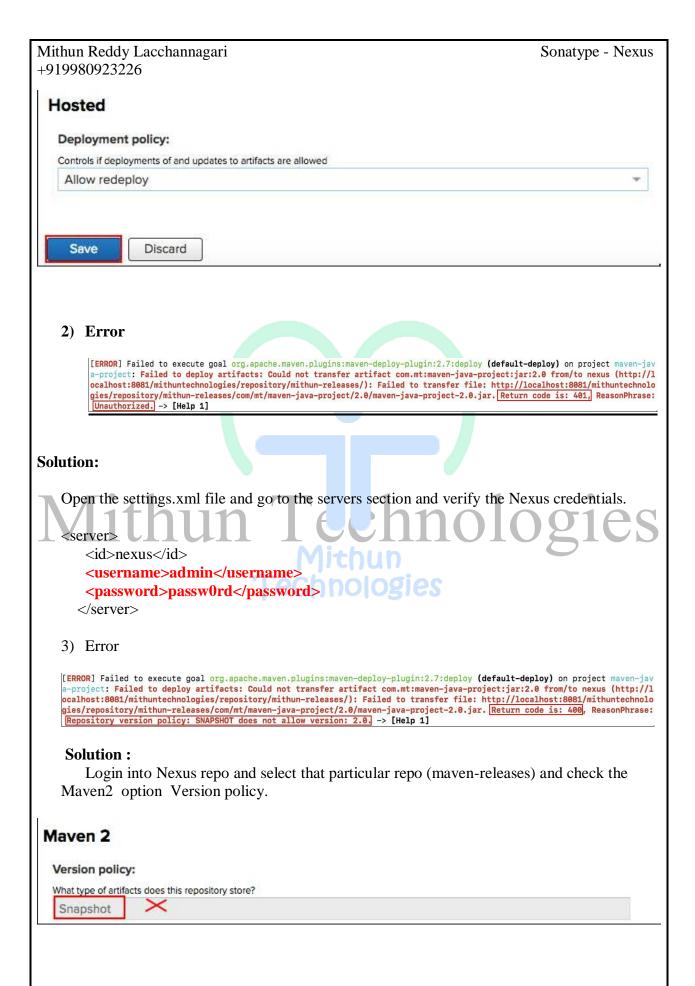
#### **Possible Errors:**

#### 1) Error

[ERROR] Failed to execute goal org.apache.maven.plugins:maven-deploy-plugin:2.7:deploy (default-deploy) on project maven-java-project: Failed to deploy artifacts: Could not transfer artifact com.mt:maven-java-project;jar:2.0 from/to nexus (http://localhost:8081/mithuntechnologies/repository/mithun-releases/): Failed to transfer file: http://localhost:8081/mithuntechnologies/repository/mithun-releases/com/mt/maven-java-project/2.0/maven-java-project-2.0.jar. Return code is: 400, ReasonPhrase: Replository does not allow updating assets: mithun-releases. | -> [Help 1]

#### **Solution:**

Login into Nexus server, go to that repository, in Hosted option select the Deployment policy as "Allow redeploy" option and click on Save button as follows.



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Change from **Snapshot** to **Release**.

Suppose if you put version as SNAPSHOT

<version>0.0.1-SNAPSHOT



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#### **References**

https://help.sonatype.com/display/NXRM3/Installation

https://help.sonatype.com/display/NXRM3/Run+as+a+Service

https://help.sonatype.com/display/NXRM3/Maven+Repositories

https://support.sonatype.com/hc/en-us/articles/213465348-How-do-I-configure-my-Gradle-build-to-publish-artifacts-to-Nexus-

