Sonatype Nexus OS (Open Source Software)

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Introduction

Nexus is an OS Artifactory repository manager use 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 / Host	✔ Apt*	✔ Conan*	✔ R*
✔ CPAN*	✔ Raw (Universal)	✔P2*			

* Available from the Nexus Exchange Community

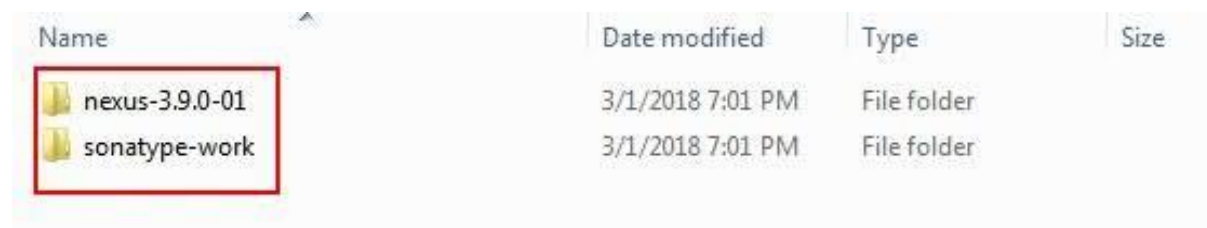## Choose your Nexus:

Nexus Repository Manager OSS 3.x - **OS X**	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) .
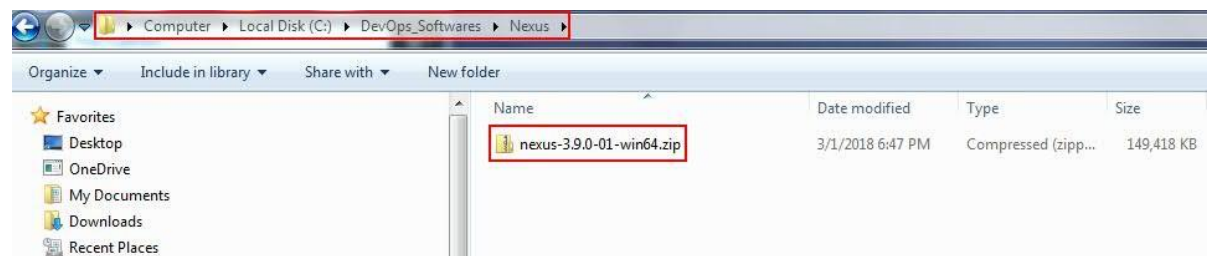
Extract the zip file. Once you extract the zip file you will see the 2 directories.

Start the Nexus Server

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).

Start the Nexus repository server as follows.
Execute the below command.
nexus.exe /run

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
✔ PyPI	✔ Ruby Gems	✔ Yum Proxy / Host	✔ Apt*	✔ Conan*	✔ R*
✔ CPAN*	✔ Raw (Universal)	✔P2*			

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Choose your Nexus:

Nexus Repository Manager OSS 3.x - **OS X**	ASC	MD5	SHA1
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Nexus Repository Manager OSS 3.x - **Unix**	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

```
[nexus@ip-172-31-65-177 ~]$ sudo systemctl start nexus
[nexus@ip-172-31-65-177 ~]$ sh /opt/nexus/bin/nexus start
Starting nexus
```

```
[nexus@ip-172-31-65-177 ~]$ sudo systemctl start nexus
[nexus@ip-172-31-65-177 ~]$ sh /opt/nexus/bin/nexus start
Starting nexus
```

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.

```
25   cd nexus
26   ls
27   cd etc
28   ls
29   pwd
30   vi nexus-default.properties
31   exit
32   clear
33   cd /opt/
34   cd nexus
35   cd bin/
36   ls
37   sh nexus stop
38   pwd
39   /opt/nexus/bin
40   sh /opt/nexus/bin/nexus
41   #sh /opt/nexus/bin/nexus stop
42   cd
43   clear
44   sh /opt/nexus/bin/nexus stop
45   sh /opt/nexus/bin/nexus start
46   sh /opt/nexus/bin/nexus status
47   sh /opt/nexus/bin/nexus restart
48   sudo systemctl start nexus
49   sudo systemctl stop nexus
50   sudo systemctl restart nexus
51   sudo systemctl status nexus
52   history
53   clear
54   sudo systemctl start nexus
55   sh /opt/nexus/bin/nexus start
56   history
```

Then click on Save button.

b) Configure the SMTP Settings

- -

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 Configuring the Runtime Environment.

health-check/

This directory contains cached reports from the Repository Health Check feature

keystores/

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.
sh nexus stop.
You can also stop nexus by running a script linked to the absolute path.

sh /opt/nexus/bin/nexus stop

```
[nexus@ip-172-31-65-177 ~]$ sh /opt/nexus/bin/nexus stop
Shutting down nexus
```

(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.

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 **nexus-default.properties** file and update the context root as follows.

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

---

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

```
[nexus@ip-172-31-65-177 ~]$ sh /opt/nexus/bin/nexus stop
Shutting down nexus
nexus is not running.
[nexus@ip-172-31-65-177 ~]$ sh /opt/nexus/bin/nexus start
Starting nexus
[nexus@ip-172-31-65-177 ~]$ sh /opt/nexus/bin/nexus status
nexus is running.
[nexus@ip-172-31-65-177 ~]$ sh /opt/nexus/bin/nexus restart
Shutting down nexus
Stopped.
Restarting nexus
[nexus@ip-172-31-65-177 ~]$ sudo systemctl start nexus
[nexus@ip-172-31-65-177 ~]$ sudo systemctl stop nexus
[nexus@ip-172-31-65-177 ~]$ sudo systemctl restart nexus
[nexus@ip-172-31-65-177 ~]$ sudo systemctl status nexus
● nexus.service - LSB: nexus
   Loaded: loaded (/etc/rc.d/init.d/nexus; generated)
   Active: active (exited) since Sun 2020-08-23 11:45:34 UTC;
     Docs: man:systemd-sysv-generator(8)
```

```
To stop, start and restart nexus as "nexus user" use the
following commands/:
sh /opt/nexus/bin/nexus stop or sudo systemctl stop nexus
sh /opt/nexus/bin/nexus start or  sudo systemctl start nexus
sh /opt/nexus/bin/nexus status or sudo systemctl status nexus
sh /opt/nexus/bin/nexus restart  or   sudo systemctl start nexus
```

Create the repositories

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

Select the repository type.

Repositories / Select Recipe

	Recipe ↑
	bower (group)
	bower (hosted)
	bower (proxy)
	docker (group)
	docker (hosted)
	docker (proxy)
	gitlfs (hosted)
	maven2 (group)
	maven2 (hosted)
	maven2 (proxy)
	npm (group)
	npm (hosted)
	npm (proxy)

Maven Integration with Nexus

update the pom.xml with below lines for each application.

Note: After </dependencies> tag you can put below lines.

```xml
<distributionManagement>
  <repository>
   <id>nexus</id>
   <name>Landmark Technologies Releases Nexus Repository</name>
   <url>http://localhost:8081/repository/landmark-technologies-releases</url>
  </repository>
  <snapshotRepository>
   <id>nexus</id>
```

```
  <name>Landmark Technologies Snapshot Nexus Repository </name>
  <url>http://localhost:8081/repository/landmark-technologies-snapshots</url>
  </snapshotRepository>
 </distributionManagement>
```

Add the below lines in MAVEN_HOME/**conf/settings.xml** file.

```
<servers>
  <server>
  <id>nexus</id>
  <username>admin</username>
  <password>*****</password>
  </server>
</servers>
```

Note: Here replace **** with actual password.

Now run the below command to upload the artifact into nexus using below command.

mvn clean deploy

- -

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://loc
alhost:8081/mithuntechnologies/repository/mithun-releases/): Failed to transfer file: http://localhost:8081/mithuntechnologie
s/repository/mithun-releases/com/mt/maven-java-project/2.0/maven-java-project-2.0.jar. Return code is: 400, ReasonPhrase: Rep
ository 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.

2) 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: 401, ReasonPhrase: Unauthorized. -> [Help 1]

Solution:

Open the settings.xml file and go to the servers section and verify the Nexus credentials.

```
<server>
    <id>nexus</id>
    <username>admin</username>
    <password>*******</password>
</server>
```

3) 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: Repository version policy: SNAPSHOT does not allow version: 2.0. -> [Help 1]

Solution :
Login into Nexus repo and select that particular repo (maven-releases) and check the Maven2 option Version policy.

Maven 2

Version policy:

What type of artifacts does this repository store?

Snapshot ✗

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

Suppose if you put version as SNAPSHOT

<version>0.0.1-SNAPSHOT</version>

What is SnapShot and what is Release?

Using below Maven Central Repo we can download libraries.
https://search.maven.org/

How to deploy(store) 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/
landmarktechnologies /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>nexus</id>
        <url>http://localhost:8086/ landmarktechnologies /repository/remote-repo-
        landmark- technologies/</url>
     </repository>
</repositories>

To Restrict, to get it from only remote repo instead from Maven Central Repo, add below code snippet in
settings.xml

<mirror>
    <id>nexus</id>
    <name>Remote Repository</name>
    <url>http://localhost:8085/ landmarktechnologies /repository/remote-repo-landmark-technologies/</url>
    <mirrorOf>*</mirrorOf>
 </mirror>
- -

Proxy to Maven Central repo
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.

Open the Nexus Repository Manager user interface.

Click Administration in the top navigation menu, and then select Repositories.
Click Create repository, and then choose the maven2 (proxy) recipe from the list.
Add the following text in the required fields:
Name: landmarktechnologies -proxy-repo
Remote storage URL: https://repo1.maven.org/maven2
Click Create repository to complete the form.

Settings.xml

```
<mirror>
    <id>nexus</id>
    <name>Remote Proxy Repository</name>
    <url>http://localhost:8085/ landmarktechnologies /repository/ landmarktechnologies -proxy-repo/</url>
    <mirrorOf>*</mirrorOf>
 </mirror>
```
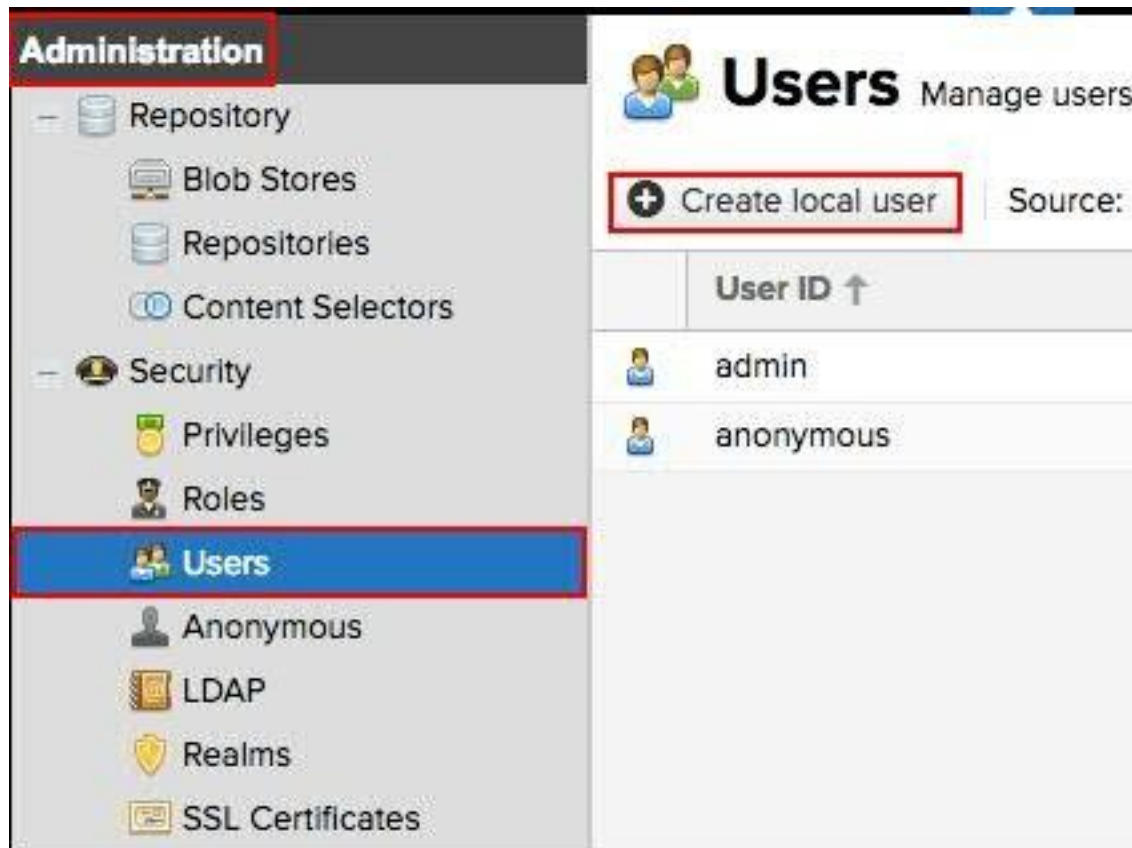
If you want only to download dependencies from Nexus, put this in the pom.xml:

```
<repositories>
    <repository>
      <id>nexus</id>
        <url>http://localhost:8085/landmarktechnologies/repository/ landmarktechnologies -proxy- repo/</url>
    </repository>
</repositories>
```

Create Users

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

👥 **Users** / 👤 Create User

ID:

This will be used as the username

LandmarkTechnology

First name:

simon

Last name:

simon

Email:

Used for notifications

legah2002@gmail.com

Password:

•••••

Confirm password:

•••••

Status:

Select status

🛑 This field is required

Roles:

Available

Granted

Filter ⊗

nx-anonymous

nx-admin

⟩

⟨

Create local user   Cancel

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-