

## Summary

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In a Maven project, the use of internal repository manager is recommended for its better usability though Maven central repository provides various advantages. In reality, an enterprise or organization provides one or more central repository and Nexus connects these external repositories like a proxy to provide a virtual repository connection point. Actually the internal developers request required artifacts depending Nexus repositories only.

The following is how to use Nexus, a useful open source to use Maven.

## Description

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Nexus is a Maven repository manager, a tool that configures internal repositories required by a project or an enterprise.

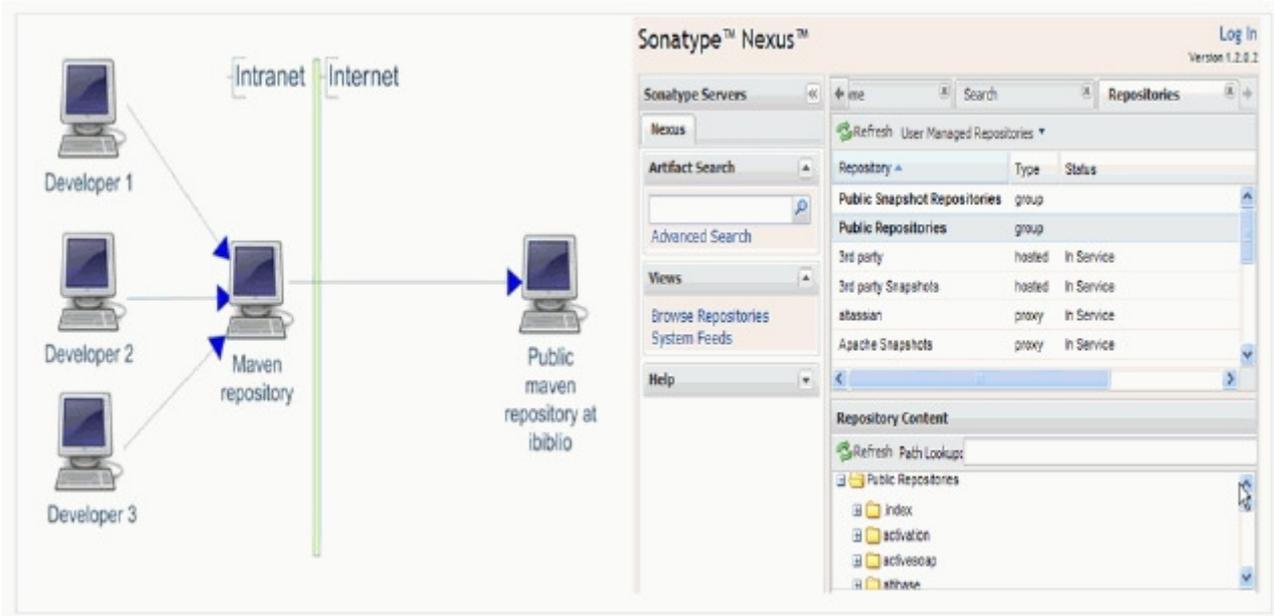
### Effects of Nexus

1. Apply a proxy concept to download libraries fast
  - More effective than to download from the central repository directly
2. Manage effectively the libraries that cannot be uploaded to open repositories
  - Use the libraries that cannot be distributed in public due to the license
  - 3rd party libraries
  - Libraries created as products by internal project
3. Library management consistent between project developers
  - Version management for libraries used in projects

### Features of Nexus

1. Intuitive and highly usable UI
2. Easy and quick installation - .war format file distribution
3. Indexing and search functions for artifacts
4. Interworking with m2eclipse
5. Artifact registration and management through a web UI

### Nexus Diagram



## Environmental settings

### Download Nexus

Download the war-packaged open source distribution file from Sonatype Nexus.

- <http://nexus.sonatype.org/downloads/>

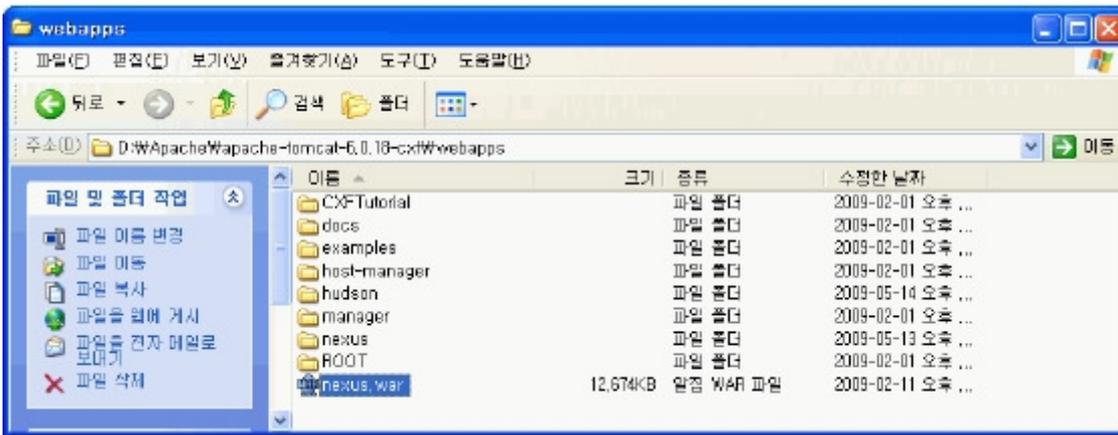
<b><a href="#">nexus-webapp-1.3.3-bundle.zip</a></b>	<b>4/17/09</b>	<b>12M</b>
<a href="#">nexus-webapp-1.3.3-bundle.zip.asc</a>	4/17/09	189
<a href="#">nexus-webapp-1.3.3-bundle.zip.asc.md5</a>	4/17/09	32
<a href="#">nexus-webapp-1.3.3-bundle.zip.asc.sha1</a>	4/17/09	40
<a href="#">nexus-webapp-1.3.3-bundle.zip.md5</a>	4/17/09	32
<a href="#">nexus-webapp-1.3.3-bundle.zip.sha1</a>	4/17/09	40
<b><a href="#">nexus-webapp-1.3.3.war</a></b>	<b>4/17/09</b>	<b>11M</b>
<a href="#">nexus-webapp-1.3.3.war.asc</a>	4/17/09	189
<a href="#">nexus-webapp-1.3.3.war.asc.md5</a>	4/17/09	32
<a href="#">nexus-webapp-1.3.3.war.asc.sha1</a>	4/17/09	40
<a href="#">nexus-webapp-1.3.3.war.md5</a>	4/17/09	32
<a href="#">nexus-webapp-1.3.3.war.sha1</a>	4/17/09	40
<b>Nexus Migration Plugin for Nexus Bundle Installation</b>		
<b><a href="#">nexus-migration-plugin-packaging-1.0-webapp.zip</a></b>	3/19/09	280k
<a href="#">older/</a>	4/9/09	
<a href="#">snapshot/</a>	8/29/09	

### Install Nexus

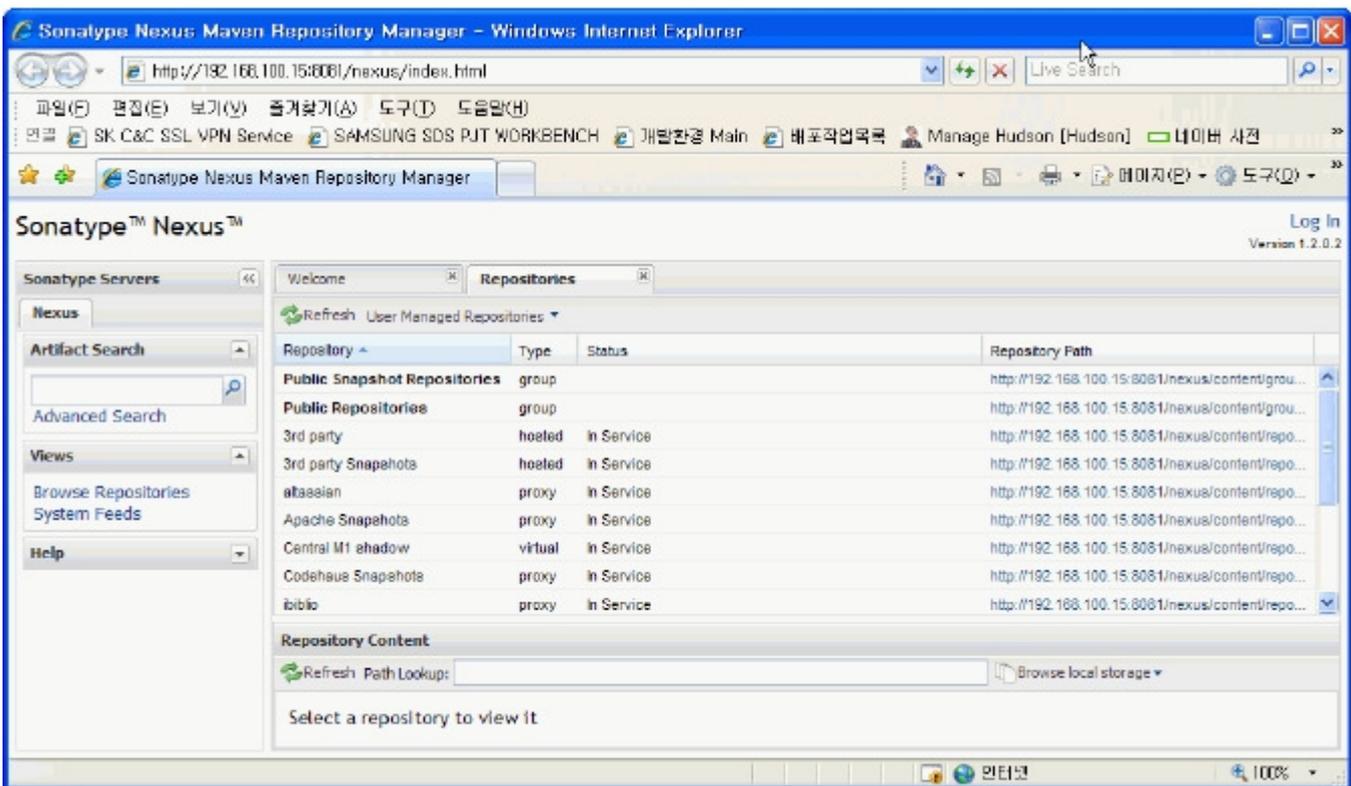
Distribute the downloaded nexus-webapp-1.3.3.war to the target WAS.

Rename the war file to nexus.war to set the Context Root as nexus.

- an example of using Tomcat



Nexus main screen



Modify the Maven local repository settings.xml file.

Add Nexus setting to <server> and <mirrors> in setting.xml, the Maven setup file.

<servers> Tag - list of authentication information to log in certain servers.

```

<servers>
  <server>
    <id>release</id>
    <username>deployment</username>
    <password>*****</password>
  </server>
</servers>

```

✓ Modify username and password to the ones of distribution users set by Nexus.

<mirrors> Tag – list of mirrors used to download artifacts from remote repositories

```
<mirrors>
  <mirror>
    <id>nexus</id>
    <mirrorOf>central</mirrorOf>
    <url>http://[domain]:[port]/nexus/content/repositories/releases/</url>
  </mirror>
  <mirror>
    <id>snapshots</id>
    <mirrorOf>public-snapshots</mirrorOf>
    <url>http://[domain]:[port]/nexus/content/groups/public-snapshots/</url>
  </mirror>
</mirrors>
```

✓ Modify URL to the location where Nexus is installed.

## Setup the <distributionManagement> part in pom.xml

Define the target servers to distribute the created packages (war, jar, etc.).

```
<distributionManagement>
  <!-- use the following if you're not using a snapshot version. -->
  <repository>
    <id>release</id>
    <url>http://[domain]:[port]/nexus/content/repositories/releases/</url>
  </repository>
  <!-- use the following if you ARE using a snapshot version. -->
  <snapshotRepository>
    <id>snapshots</id>
    <url>http://[domain]:[port]/nexus/content/repositories/snapshots/</url>
  </snapshotRepository>
</distributionManagement>
```

✓ Modify URL to the location where Nexus installed.

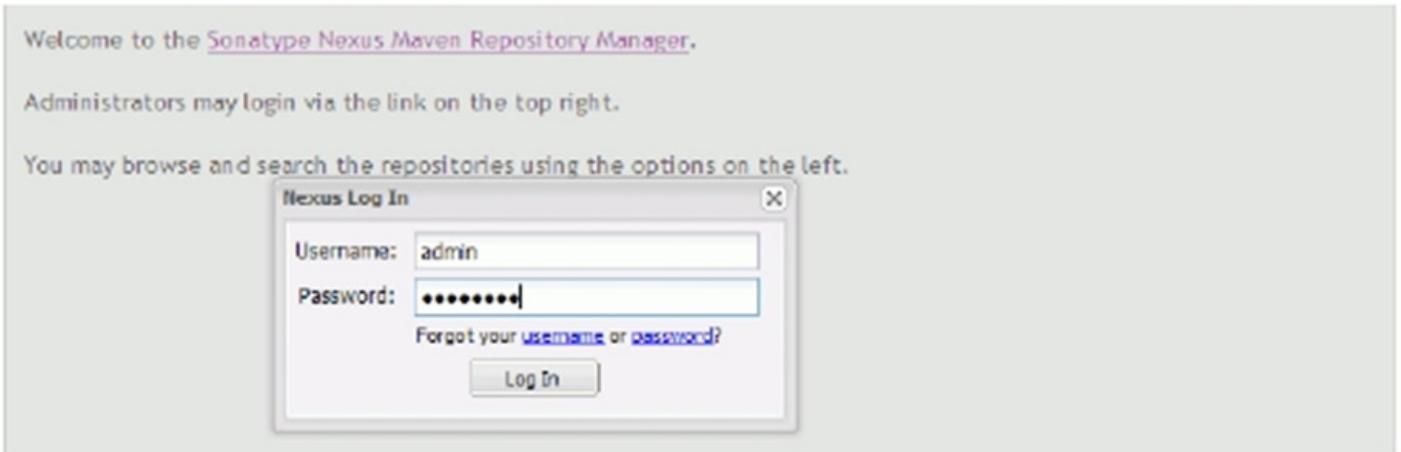
## Manual

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### 1. Login

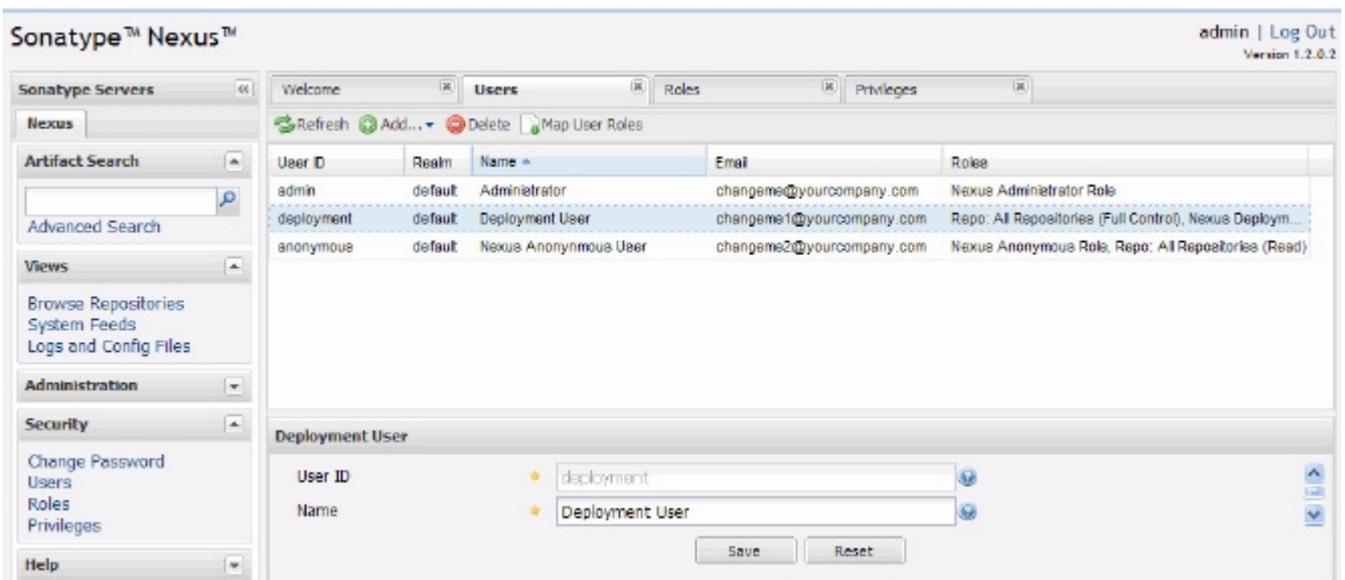
Open Nexus web screen and click the login link at the right top.

One account "admin and admin123" is provided as Username and Password, Once connected, you can change the password.



## 2. Create users and grant permissions

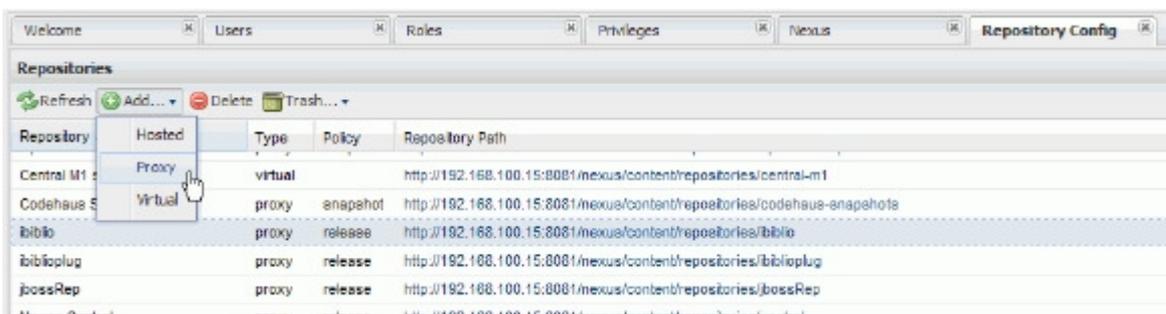
Login as Admin account and use the Users, Roles and Privileges in the security menu in the left to set permissions.



## 3. Add a repository

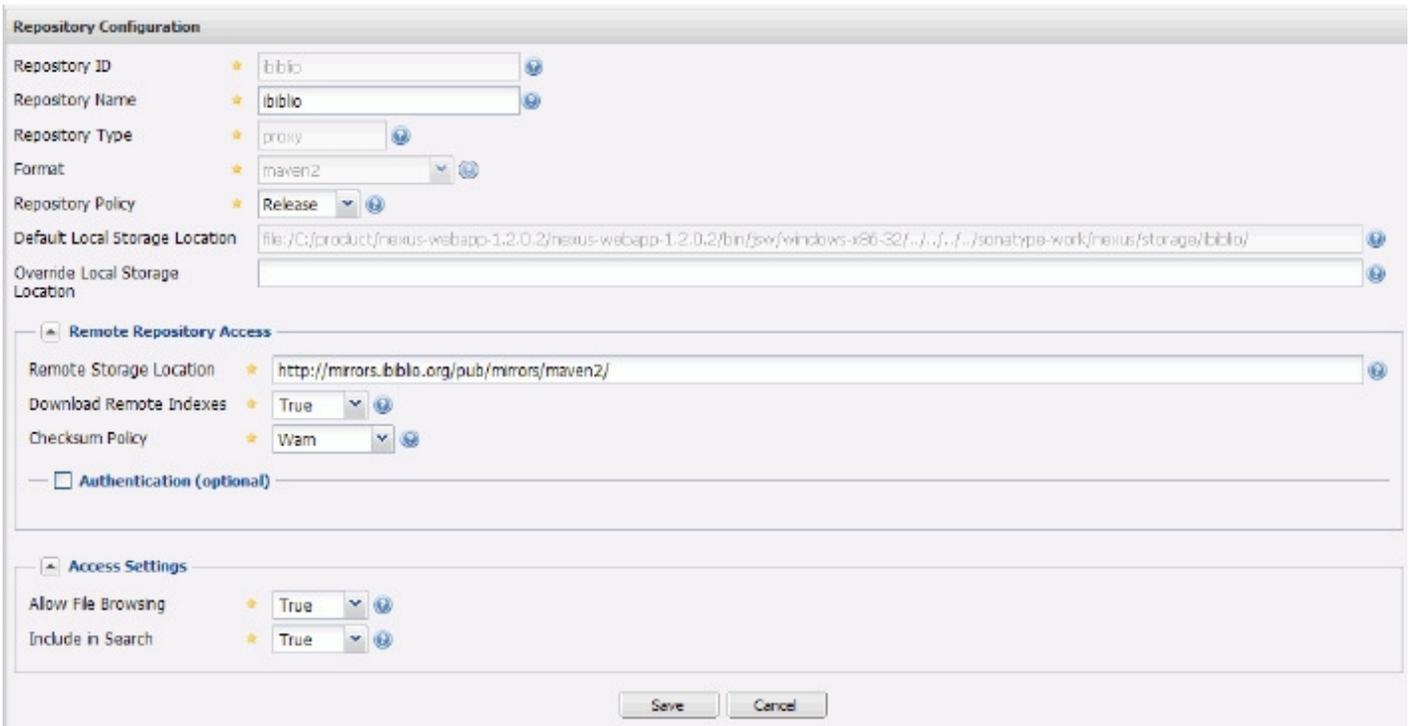
Nexus can multiple central repositories and use the proxy concept to provide the development an easiness to interwork repositories

### 3.1 Click Add button in the menu and select Proxy.



### 3.2 Enter the value for the repository to be added.

- Register ibiblio repository as one of the typical Maven Central Repositories.

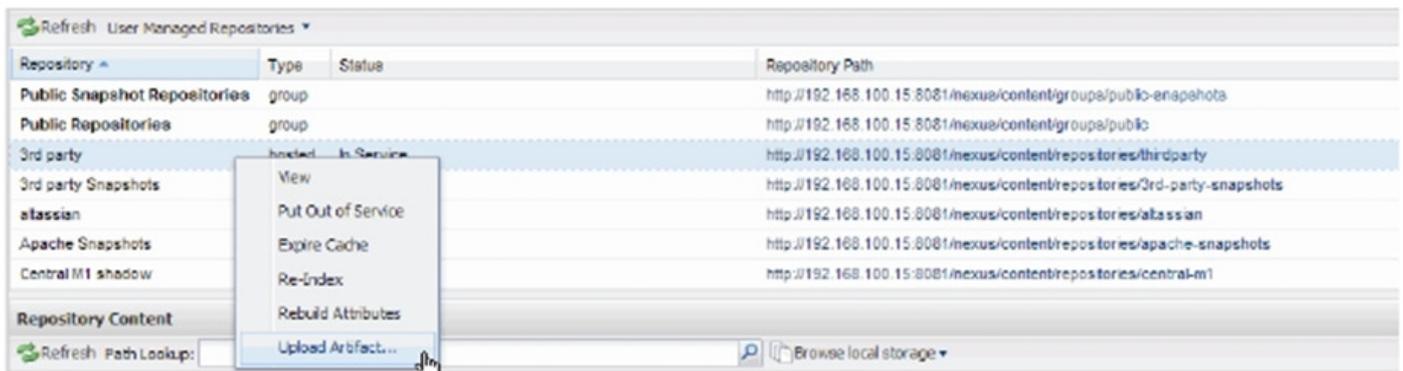


#### 4. Register an artifact

In Nexus repository, register and use the 3rd party libraries used in the project or war- or jar-packaged Maven artifacts created in the project.

##### 4.1 Select a repository for uploading

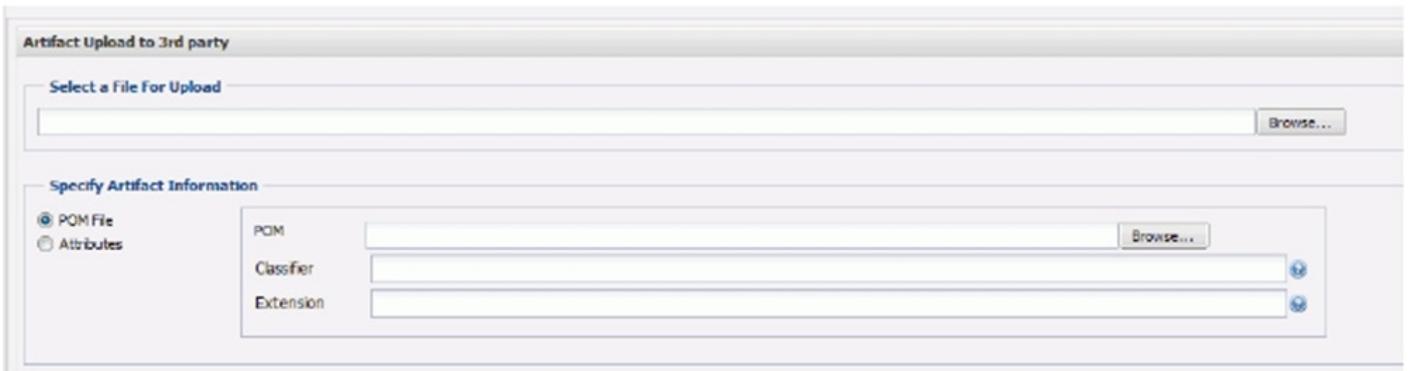
- In the 3rd party repository, register egovframework-basic-web artifact created in the development of e-government standard framework.



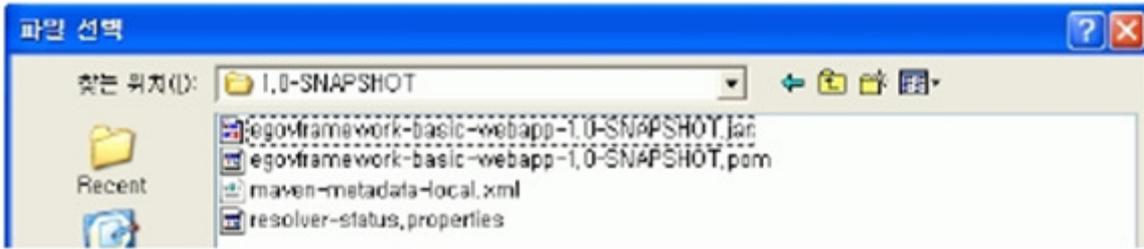
Select a 3rd party repository and then Upload Artifact from the context.

##### 4.2 Set up an artifact file and pom.xml to upload.

Click the Browser button to designate a file to upload, which is located in the developer's PC.



Select the artifact and pom.xml to distribute from Maven local repository to Nexus.



Browse in the repository to find the newly registered artifact.



5. Check the artifact's pom.xml for Dependency setup

You have to set up dependency in pom.xml to set up artifacts created by a 3rd party or in a product. You can check the dependency information of the artifacts to be set up by browsing in Nexus

Example) Check dependency information to use jeus artifact

5.1. Select a 3rd party repository and select jeus-6.0.pom in jeus directory in the content area.

Repository	Type	Status	Repository Path
Public Snapshot Repositories	group		http://192.168.100.15:8081/nexus/content/groups/public-snapshots
Public Repositories	group		http://192.168.100.15:8081/nexus/content/groups/public
3rd party	hosted	In Service	http://192.168.100.15:8081/nexus/content/repositories/thirdparty
3rd party Snapshots	hosted	In Service	http://192.168.100.15:8081/nexus/content/repositories/3rd-party-snapshots
atlassian	proxy	In Service	http://192.168.100.15:8081/nexus/content/repositories/atlassian

Repository Content	
Refresh	Path Lookup: <input type="text"/>
Browse local storage	
<ul style="list-style-type: none"> <li>java</li> <li>commons</li> <li>jeus <ul style="list-style-type: none"> <li>javaee</li> <li>jeus <ul style="list-style-type: none"> <li>6.0 <ul style="list-style-type: none"> <li>jeus-6.0.jar</li> <li>jeus-6.0.jar.md5</li> <li>jeus-6.0.jar.sha1</li> <li>jeus-6.0.pom</li> </ul> </li> </ul> </li> </ul> </li> </ul>	

5.2. Right click it and select Download from the context menu to check the dependency information.

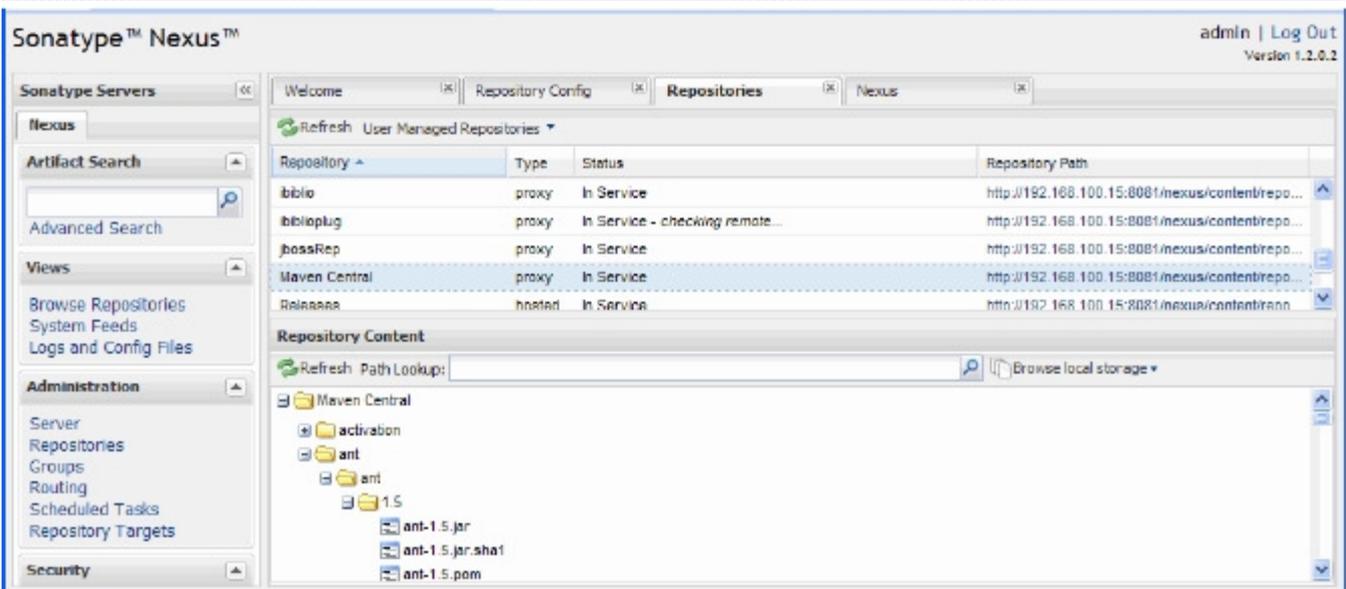
```
<?xml version="1.0" encoding="UTF-8" ?>
- <project>
  <modelVersion>4.0.0</modelVersion>
  <groupId>jeus</groupId>
  <artifactId>jeus</artifactId>
  <version>6.0</version>
  <description>POM was created by Sonatype Nexus</description>
</project>
```

Copy and paste the pom.xml information and declare it in the project's pom.xml to use the jeus library.

## Samples

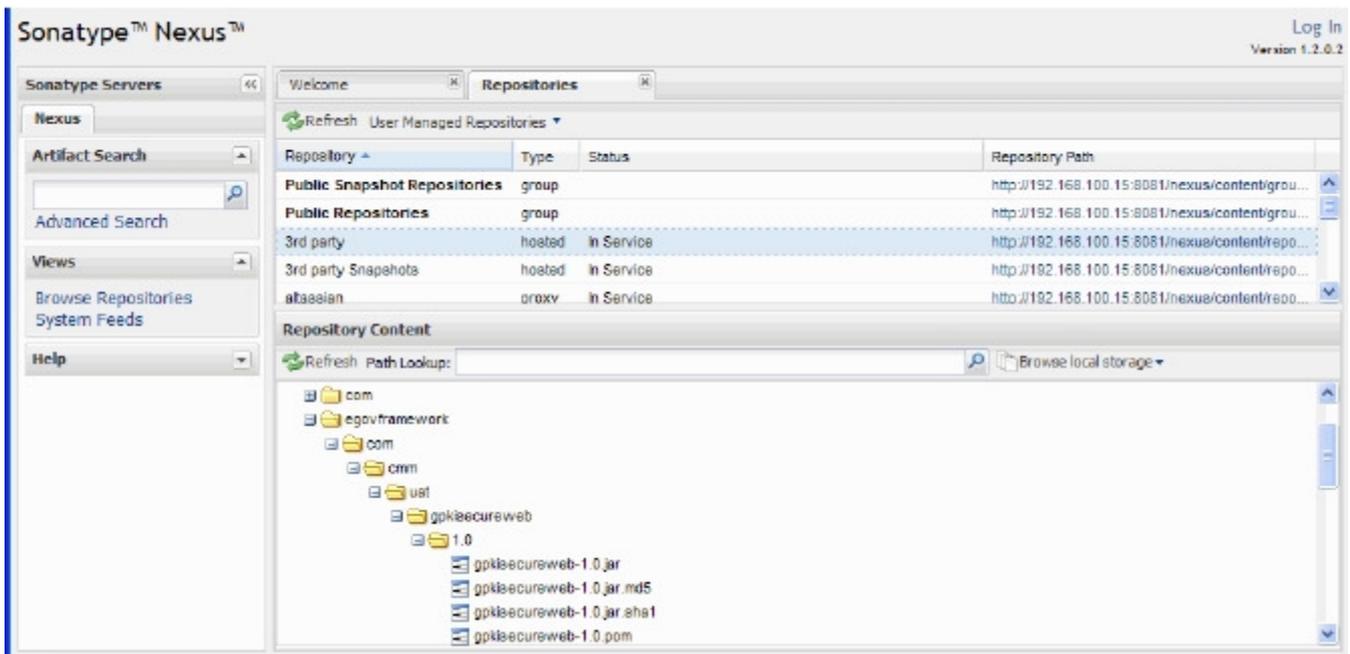
### Management of artifacts downloaded from the Central Repository

The artifacts requested by developers is cached by the Central Repository and managed by Nexus repository.



### Management of artifacts created within a project

The Maven artifacts created in the parts of a project are distributed to Nexus and the artifacts distributed by other parts are referred to in order to progress projects.



✓ A repository named '3rd Party' is added to Nexus and the products developed in the e-government standard framework are distributed to this repository and used in the development.

## References

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Nexus: Maven Repository Manager [<http://nexus.sonatype.org/>]