

# Nexus

Artifact Management

# What is a Maven Repository?

- A Maven repository provides a standard for storing and serving binary software
- Local repository exists in `~/.m2/repository`
- Remote repository Maven Central is at `http://repo1.maven.org/maven2/`

# What is a Maven artifact?

- An artifact is something that is either produced or used by a project.
- Examples of artifacts produced by Maven for a project include:
  - JARs, source and binary distributions, WARs.
- Each artifact is uniquely identified by a [group id](#) and an artifact ID which is unique within a group.

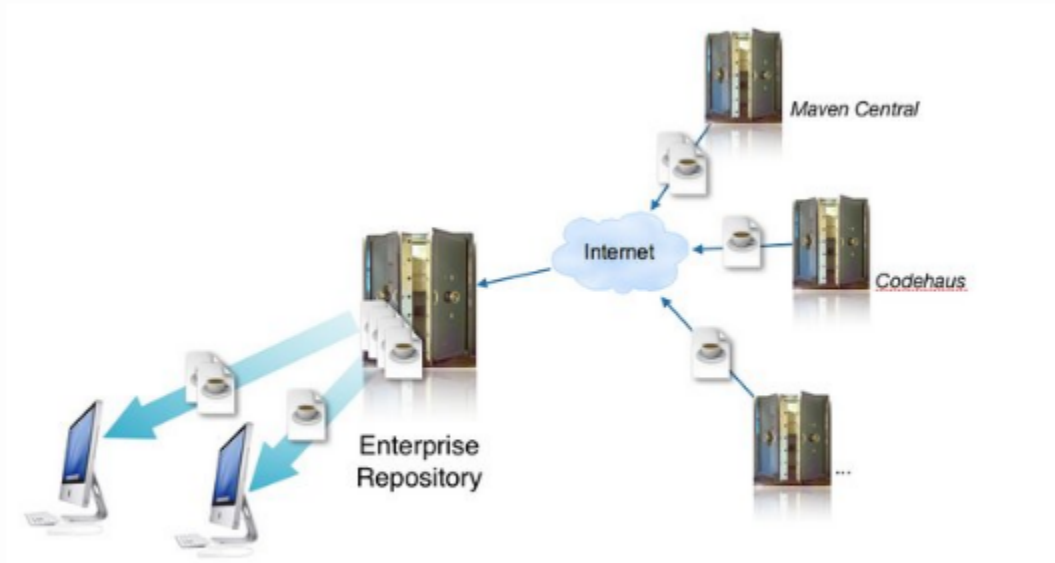
# What is Nexus?

- Nexus is a Maven Repository Manager created by Sonatype
- Simplifies the maintenance of internal repositories and access to external repositories
- Proxies requests for external artifacts and caches the results
- Provides a deployment destination for your own

# Why Nexus?

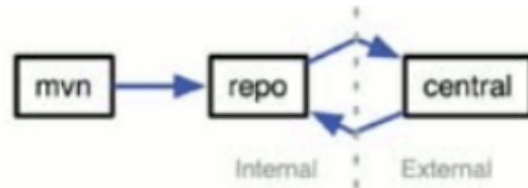
- Simple reason:
  - eliminates storing of artifacts in source control

# Artifact Downloads and Caching

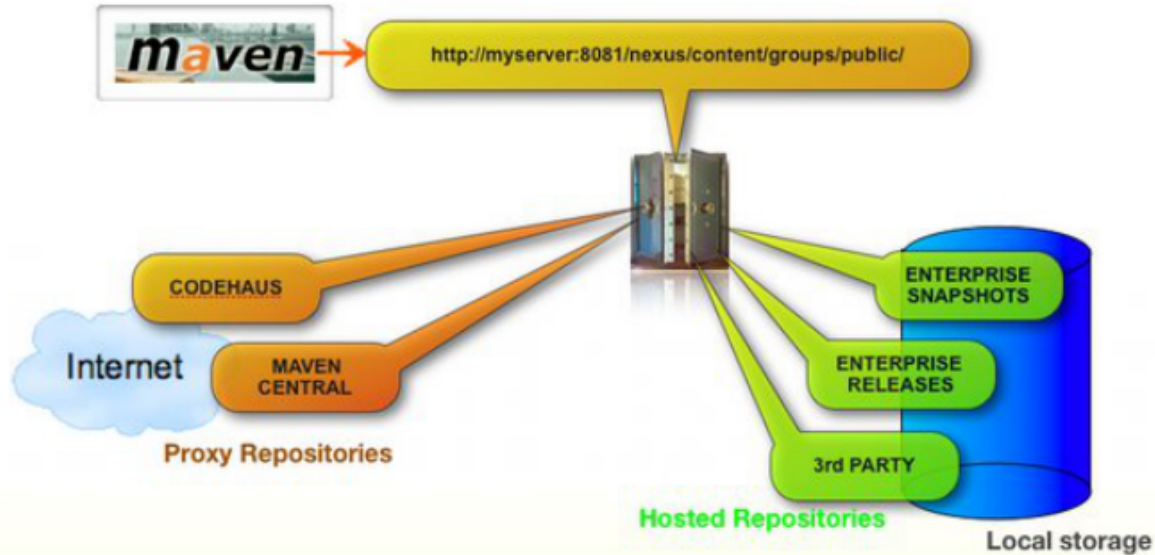


# Proxying Remote Repositories

- When you proxy a remote repository, your repository manager accepts requests for artifacts from clients
- If the artifact is not already cached, the repository manager will retrieve the artifact from the remote repository and cache the artifacts.
- Subsequent requests for the same artifact will be served from the local cache.

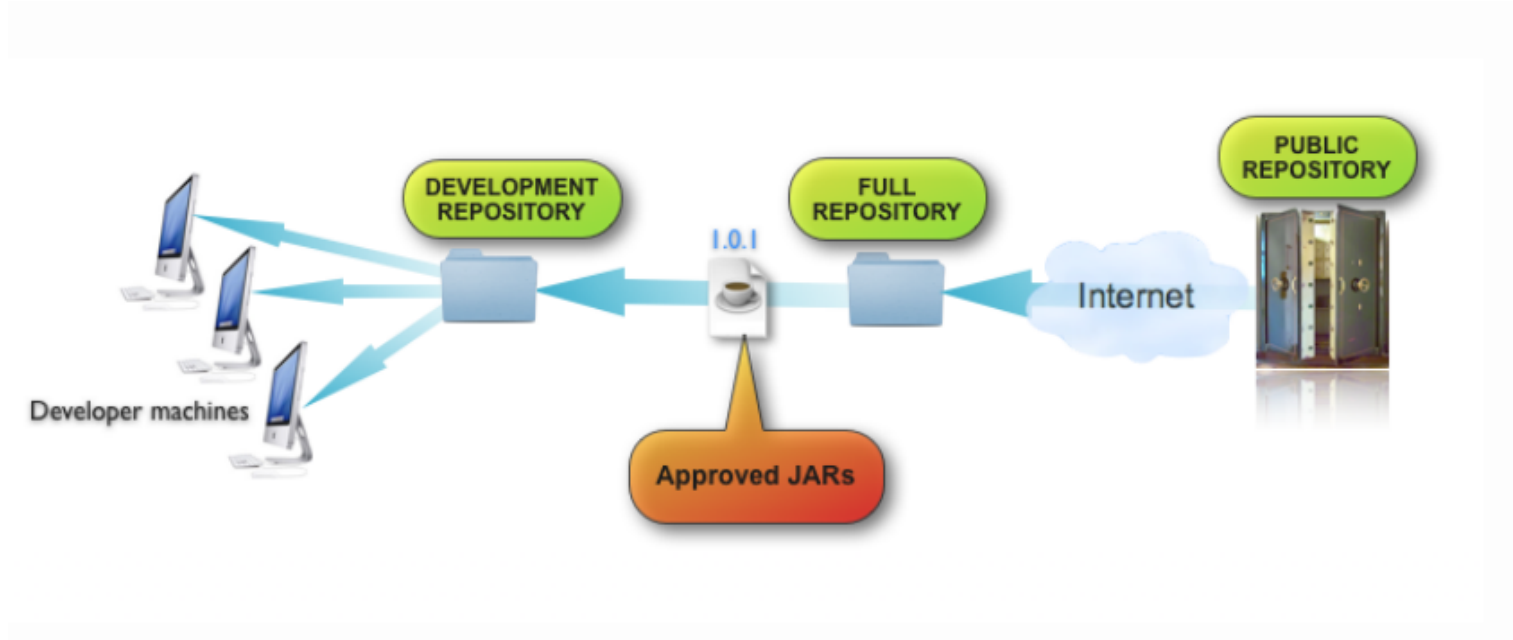


# Repository Groups





# Restricting Downloaded JARs



# Hosted Internal Repositories

- When you host a repository, your repository manager takes care of organizing, storing and serving binary artifacts
- You can use a hosted internal repository to store internal release artifacts, snapshot artifacts, or 3rd party artifacts



# Release Artifacts

- These are specific, frozen-in-time artifacts
- Considered to be solid, stable, and perpetual in order to guarantee that builds which depend on them are repeatable over time
- Released JAR artifacts are associated with PGP signatures and checksums that verify both the integrity and authenticity of the binary software artifact
- Maven Central stores release artifacts

# Browsing Repositories

The screenshot displays the Sonatype Nexus web interface. The top header shows the Sonatype Nexus logo and the version 2.7.2-03. The left sidebar contains navigation links for Artifact Search, Views/Repositories, Security, Administration, and Help. The main content area is titled 'Repositories' and features a table of repository configurations. The table includes columns for Repository, Type, Quality, Format, Policy, Repository Status, and Repository Path. Below the table, there is a section for the 'Central' repository with tabs for Browse Index, Browse Remote, Browse Storage, Configuration, Routing, and Summary. The 'Browse Storage' tab is currently selected, showing a file tree view of the Central repository.

**Sonatype Nexus** admin Sonatype Nexus™ 2.7.2-03

**Repositories**

Refresh Add... Delete Trash... User Managed Repositories

Repository	Type	Quality	Format	Policy	Repository Status	Repository Path
<b>Public Repositories</b>	group	ANALYZE	maven2			http://localhost:8081/nexus/content/groups/public
3rd party	hosted	ANALYZE	maven2	Release	In Service	http://localhost:8081/nexus/content/repositories/thirdparty
Apache Snapshots	proxy	ANALYZE	maven2	Snapshot	In Service	http://localhost:8081/nexus/content/repositories/apache-snapshots
Central	proxy	ANALYZE	maven2	Release	In Service	http://localhost:8081/nexus/content/repositories/central
Central M1 shadow	virtual	ANALYZE	maven1	Release	In Service	http://localhost:8081/nexus/content/shadows/central-m1
Codehaus Snapshots	proxy	ANALYZE	maven2	Snapshot	In Service	http://localhost:8081/nexus/content/repositories/codehaus-snapsh...
Releases	hosted	ANALYZE	maven2	Release	In Service	http://localhost:8081/nexus/content/repositories/releases
Snapshots	hosted	ANALYZE	maven2	Snapshot	In Service	http://localhost:8081/nexus/content/repositories/snapshots

**Central**

Browse Index Browse Remote **Browse Storage** Configuration Routing Summary

Refresh Path Lookup: x

Central

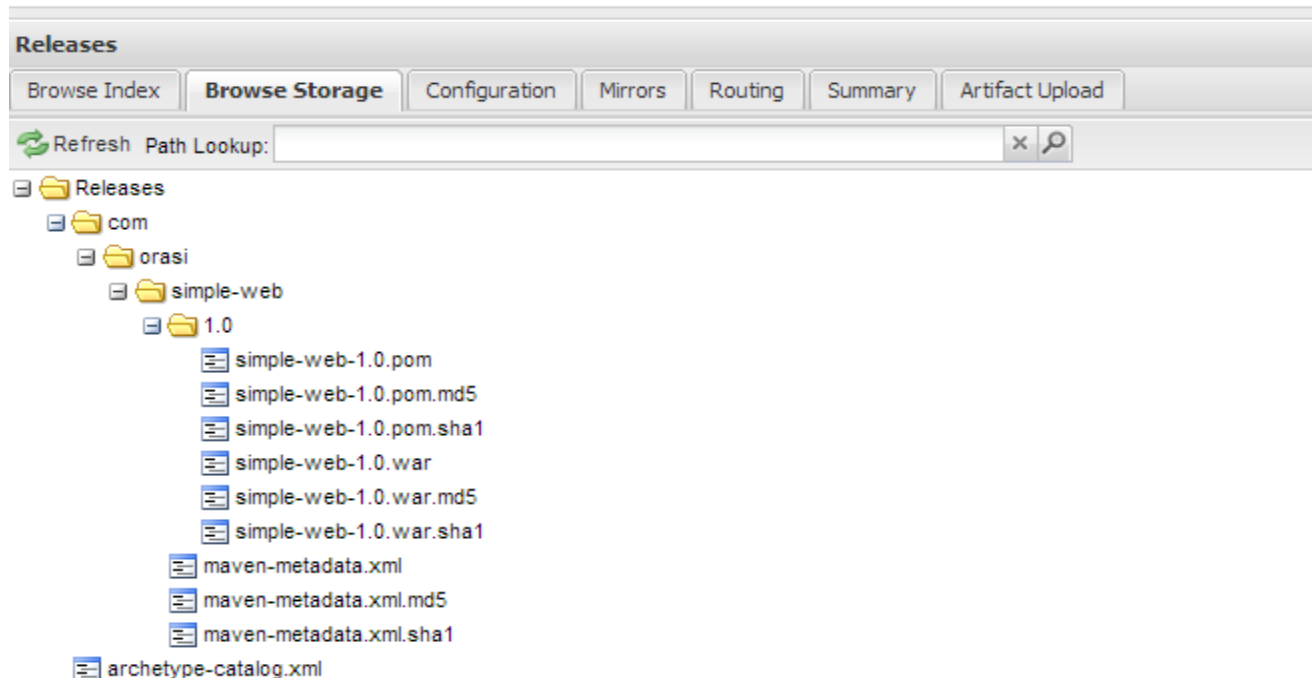
# Nexus Release Repositories

Repository ID	Comment
3 <sup>rd</sup> Party	Used to install 3 <sup>rd</sup> party artifacts that are not in one of the common public repositories
Google Code	Repository containing Google projects
Java.net – Maven 2	Contains some interesting projects like PostgreSQL and JBoss
Maven Central	Main Maven public repo. Very large.
Releases	Hosted repository for internal projects

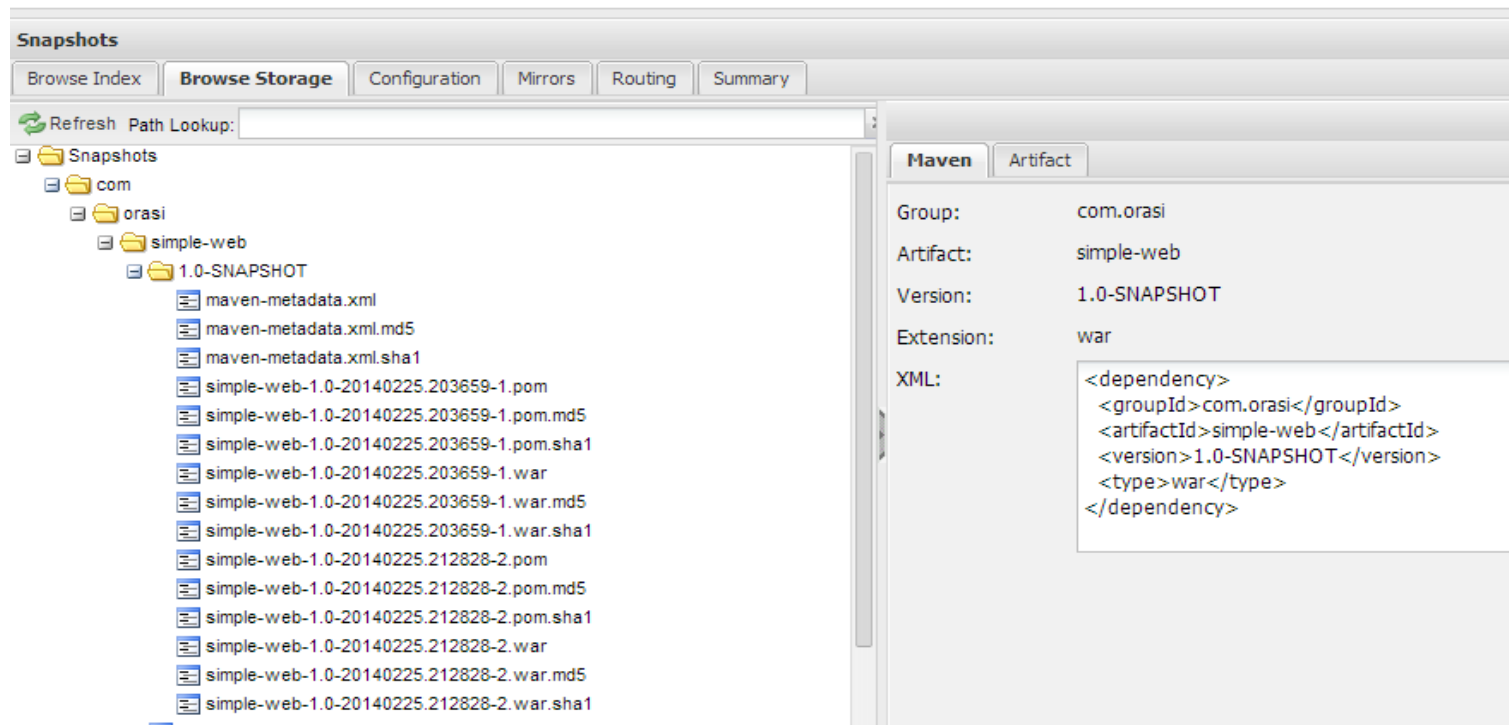
# Nexus Snapshot Repositories

Repository ID	Comment
Apache Snapshots	Snapshots for Maven and many plugins
Codehaus Snapshots	Contains many maven plugins for the Mojo Project and others
Snapshots	Hosted repository for internally developed snapshots

# Deploy release artifacts in Nexus



# Deploy snapshot artifacts to Nexus



The screenshot displays the Nexus Snapshots interface. The top navigation bar includes tabs for 'Browse Index', 'Browse Storage' (which is active), 'Configuration', 'Mirrors', 'Routing', and 'Summary'. Below the navigation bar, there is a 'Refresh' button and a 'Path Lookup:' input field. The main content area is divided into two panels. The left panel shows a hierarchical tree structure of snapshots. The right panel displays the details for the selected artifact, including its group, artifact name, version, extension, and XML representation.

**Snapshots**

Browse Index **Browse Storage** Configuration Mirrors Routing Summary

Refresh Path Lookup:

Snapshots

- com
  - orasi
    - simple-web
      - 1.0-SNAPSHOT
        - maven-metadata.xml
        - maven-metadata.xml.md5
        - maven-metadata.xml.sha1
        - simple-web-1.0-20140225.203659-1.pom
        - simple-web-1.0-20140225.203659-1.pom.md5
        - simple-web-1.0-20140225.203659-1.pom.sha1
        - simple-web-1.0-20140225.203659-1.war
        - simple-web-1.0-20140225.203659-1.war.md5
        - simple-web-1.0-20140225.203659-1.war.sha1
        - simple-web-1.0-20140225.212828-2.pom
        - simple-web-1.0-20140225.212828-2.pom.md5
        - simple-web-1.0-20140225.212828-2.pom.sha1
        - simple-web-1.0-20140225.212828-2.war
        - simple-web-1.0-20140225.212828-2.war.md5
        - simple-web-1.0-20140225.212828-2.war.sha1

**Maven** Artifact

Group: com.orasi

Artifact: simple-web

Version: 1.0-SNAPSHOT

Extension: war

XML: 

```
<dependency>
  <groupId>com.orasi</groupId>
  <artifactId>simple-web</artifactId>
  <version>1.0-SNAPSHOT</version>
  <type>war</type>
</dependency>
```



# Manually uploading artifacts (3rd Party)

The screenshot displays the Sonatype Nexus web interface. The top navigation bar includes the Sonatype logo, the text 'Sonatype Nexus', and the user 'admin' with a dropdown arrow. The version 'Sonatype Nexus™ 2.7.2-03' is also visible.

The left sidebar contains a 'Nexus' menu with the following items:

- Artifact Search
- Advanced Search
- Views/Repositories
- Repositories
- Repository Targets
- Routing
- System Feeds
- Security
- LDAP Configuration
- Privileges
- Roles
- Users
- Administration
- Capabilities
- Logging
- Plugin Console
- Scheduled Tasks
- Server
- Support Tools
- Help

The main content area is titled 'Repositories' and features a table of repositories. The table has columns for Repository, Type, Quality, Format, Policy, Repository Status, and Repository Path. The '3rd party' repository is highlighted.

Repository	Type	Quality	Format	Policy	Repository Status	Repository Path
Public Repositories	group	ANALYZE	maven2			http://localhost:8081/nexus/content/groups/public
3rd party	hosted	ANALYZE	maven2	Release	In Service	http://localhost:8081/nexus/content/repositories/thirdparty
Apache Snapshots	proxy	ANALYZE	maven2	Snapshot	In Service	http://localhost:8081/nexus/content/repositories/apache-snapshots
Central	proxy	ANALYZE	maven2	Release	In Service	http://localhost:8081/nexus/content/repositories/central
Central M1 shadow	virtual	ANALYZE	maven1	Release	In Service	http://localhost:8081/nexus/content/shadows/central-m1
Codehaus Snapshots	proxy	ANALYZE	maven2	Snapshot	In Service	http://localhost:8081/nexus/content/repositories/codehaus-snapsh...
Releases	hosted	ANALYZE	maven2	Release	In Service	http://localhost:8081/nexus/content/repositories/releases
Snapshots	hosted	ANALYZE	maven2	Snapshot	In Service	http://localhost:8081/nexus/content/repositories/snapshots

Below the table, the '3rd party' repository is selected, and the 'Artifact Upload' tab is active. The 'Select GAV Definition Source' section shows a dropdown menu with 'From POM' selected. The 'Select Artifact(s) for Upload' section includes a text input for 'Select Artifact(s) to Upload...', and fields for 'Filename:', 'Classifier:', and 'Extension:'.

# Let's install Nexus

<http://www.sonatype.org/nexus/go>

download zip

unzip nexus-2.7.2-03-bundle.zip to C:\nexus  
or /root/nexus/

# Run Nexus

- at cmd prompt go to:
  - C:\nexus\nexus-2.7.2-03\bin
- run
  - nexus console
- in browser, go to
  - localhost:8081/nexus

# **convert maven-training project**

at /root/Projects/maven-training

type:

gradle wrapper

gradle init

# Let's use it!

- Go to the maven-training project from yesterday.
- Edit the build.gradle

- add

```
repositories {  
    maven {  
        url "http://localhost:8081/nexus/content/groups/public"  
    }  
}
```

- run
  - gradle clean build

**End**