Version Comparison - Artifactory vs Nexus Storage

Artifact Storage

An Artifact Storage is a binary repository manager, which is a software tool designed to optimize the download and storage of binary files used and produced in software development. It centralizes the management of all the binary artifacts generated and used by the organisation to overcome the complexity arising from the diversity of binary artifact types, their position in the overall workflow and the dependencies between them.

Pricing

Jfrog - https://jfrog.com/pricing/#on-prem

Nexus - https://www.sonatype.com/product-pricing

Artifactory vs Nexus

Jfrog Artifactory	Nexus
Latest versions- Jfrog Artifactory – Artifactory 5.5	**Latest versions- Repository Manager 3.19.1**
Trial Licenses- JFrog allows you to register for a trial license online. A 30-day trial will be sent to your email and their sales department can extend this.	**Trial Licenses-** To acquire a 14 day trial for Nexus you need an email conversation with their sales department. This is a tedious manual process which takes a week's time.
Cloud and on-Prem- Jfrog supports on-prem, cloud, multi-cloud and hybrid architecture.	**Cloud and on-Prem** It also supports on-prem, cloud, multi-cloud and hybrid architecture.
Repositories- Artifactory comes with a tremendous amount of repositories out of the box. JFrog does not allow user provided repositories.	**Repositories-** SonaType has provided Nexus with OSGi interfaces that enable you to build custom repository types. The community already supports seven custom types (http://exchange.sonatype.com/list). Custom-built tooling isn't for every organization, but for those with specific needs we have to applaud Nexus for extensibility.
Searchability / Flexibility- Artifactory has custom layouts that allow you to make your own. Every repository has a type (Maven, NPM, etc) and a layout. Custom layouts should be cautiously adopted. Most of the clients (eg. Gradle) do not have the feature of discovering a non-standard layout. Artifactory has good support for search through their web-based GUI and allows you to search on name, checksum, binary type, properties, and more. For the real complex searches Artifactory provides the *Artif actory Query Language*. AQL allows you to answer even the most advanced searches, but is limited to JFrog CLI and the REST API.	**Searchability / Flexibility-** Nexus does not provide custom layouts, but it allows you to deploy out of layout. Deploying out of layout limits resolving those Artifacts through the REST and not through tools like Maven or Gradle. Their UI search features are on par with Artifactory offering multiple ways of defining your search, both on name, attributes and checksum.

Interactions - REST API + Tools-

Artifactory has a [thoroughly documented REST API](). It handles almost all possible operations, from everyday tasks like uploading artifacts, to updates of users, and configuring reverse proxies. Their UI also makes heavy use of the API, which is a testimony to its maturity.

JFrog also provide "JFrog CLI", an application which can interact with their products, including Artifactory. Amongst other things JFrog CLI supports manipulation of artifacts and builds. JFrog supply example use cases, like putting the tool beside your MSBuild project and using the commands as part of your build process to upload the resulting artifacts.

The Artifactory plugin for Jenkins is very mature.

Interactions - REST API + Tools

Nexus has an interactive API browser. This is quite nice to work with but their REST API is very lacking. The documentation is not comprehensive and having to guess whether a parameter is mandatory or what the return type is does not help the user experience of working with the API. Nexus also uses the idea of a pagination token meaning you can only go to the "next" or "previous" page - you can't fast forward e.g. five pages of items. Theres is no way of limiting the number of results to get back either.

This drawback of the Rest API has been overcome and added in Nexus3.

Cleanup-

Artifactory's primary means of cleanup relies on AQL to identify obsolete artifacts and then using the CLI or REST to delete them.

This makes it a bit harder compared with the others, but much more flexible in creating rulesets not only based on time or usage. For simple use-cases a snapshot repository can be used to limit the amount of releases for a specific version.

Cleanup-

Nexus offers scheduled cleanup tasks for maven snapshot repository that let you define a filter specifying which artifacts to keep and which to delete. It also supports an "unused in x days" task for the rest that can be run defined by a cron-like string.

Users and Auth-

Artifactory comes with a comprehensive suite of integrations: LDAP, Active Directory, OAuth on GitHub, Google, Cloud Foundry and OpenID. On top of that Artifactory supports SAML SSO, so custom providers can be configured. This allows for password managers like LastPass.

One caveat is that the GitHub integration gives login permission to *everyone*, on the instance, so it should only be used with a GitHub Enterprise, as providing everyone on [GitHub.com]() with access is probably not what you are trying to do.

Users and Auth-

Nexus supports LDAP and Atlassian Crowd.

Users/Groups and Roles restrictions-

Artifactory has a [permission scheme]() of users, groups and permissions. The users are the central component. Users belong to groups that have roles. Roles are permission sets such as Manage, Delete/Overwrite, Deploy/Cache, Annotate, or Read. These roles are associated with repositories to implement the permission scheme. Artifactory wins here as it is easier to work with.

Users/Groups and Roles restrictions-

Nexus has made sure every fathomable combination of users, repositories and permission is [available](). This is not praise. It is one of the most cumbersome and complex access control systems. Users have roles, and roles have privileges. There are hundreds of different privileges making it an act of black magic or brute force to figure out what access configuration enables a user to do on any specific task.

Storage Backends-

Using the license that we are using in our experiment Artifactory only supports local storage. Artifactory has binary deduplication by hash-value allowing for multiple instances of the same file without bloating the [filestore]().

Artifactory has a very simple pricing model, but that unfortunately means that we have to pay a huge increase to get cloud storage. It is just one of the many benefits from the Enterprise solution. Most of the clients use the Artifactory Pro license.

Storage Backends-

In both the OSS and Pro versions of Nexus local storage and S3 is supported. Nexus has the concept of *blob stores*. Stores of both types can be active at the same time. A repository can only be in one store at a time, and artifacts can only be moved between repositories in the same blob store. This means that all the repositories for an artifact's lifecycle need to be in the same store.

Nexus does not provide any deduplication even though [this feature has been requested]() more than a year ago.

	Extensibility-		Extensibility-

Extensibility-

Artifactory does not have a marketplace for plugins, but it provides a GitHub repository with many examples. The documentation for these plugins are of *highly* varying quality and depth. Artifactory provides extensibility through their event API which allows you to do nearly everything through plugins. Unfortunately, JFrog has not taken a big stance on best practices and leaves users to figure out their own solutions.

Extensibility-

Nexus has some plugin-ability and has a marketplace. The interface for the marketplace is not great, but it allows filtering on product and version. There are about 25 plugins that are usable in Nexus.

The installation of plugins is a manual process. The plugins are built on OSGi containers (see).

To install a plugin you need to stop the Nexus service, edit XML configuration files, and download the plugin. In some cases you even need to build the plugin too. This process is painful and should be seen as code injection rather than plugin functionality.

Jfrog Editions comparison-

Artifactory OSS (Open Source Solution)

	Artifactory OSS	Artifactory Pro	Artifactory SaaS	Artifactory Enterprise
Proxy and Cache Remote Repository Artifacts	✓	✓	✓	✓
Deploy Artifacts via the UI or via REST/HTTP	✓	✓	✓	✓
Bulk Artifact Deployment (from Archive)	✓	✓	✓	✓
Intuitive Slick Web UI	✓	✓	✓	✓
LDAP Authentication	✓	✓	✓	✓
Role Based Authorization	✓	✓	✓	✓
Include/exclude patterns for Stored Artifacts	✓	✓	✓	✓
Search by Name, Class, Module Info, XPath Values	✓	✓	✓	✓
UI-based Move/Copy/Delete	✓	✓	✓	✓
Smart "No-Duplicates" Storage	✓	✓	✓	✓
Incremental and Historical Backup Services	✓	✓	✓	✓
Integration with All Leading CI-servers	✓	✓	✓	✓
Artifactory Query Language	✓	✓	✓	✓
Repository Replication	✗	✓	✓	✓
Multi-push Replication	✗	✗	✓ (Dedicated server)	✓
S3 Object Storage	✗	✗	✓ (Dedicated server)	✓
Google Cloud Storage	✗	✗	✓ (Dedicated server)	✓
Managing Build Artifacts for Reproducible Builds	✗	✓	✓	✓
Promotion, Demotion and Cleanup of Build Artifacts	✗	✓	✓	✓
Automatic 3rd Party License Violation Detection per Build	✗	✓	✓	✓
3rd party license and security governance with Black Duck Code Center	✗	✓	✓	✓
Powerful RESTful API for Release Automation	✗	✓	✓	✓
Annotate Artifacts with Searchable Properties	✗	✓	✓	✓
Custom Repository Layout for Non-Maven Module Mgmt.	✗	✓	✓	✓
Docker Registry	✗	✓	✓	✓

https://www.jfrog.com/confluence/display/RTF4X/Artifactory+Comparison+Matrix

Jfrog Artifactory On Prem Versions with cost-

1) Artifactory Pro - $2,950/year

2) Artifactory Pro X - $14,400/year

3) Artifactory Enterprise - $29,500/year

Comparison of frog Artifactory On Prem Versions

Artifactory Pro license	Artifactory Pro license	3 Artifactory Enterprise licenses
Universal support for all major packages	Universal support for all major packages	Universal support for all major packages
Free upgrades	Free upgrades	Free upgrades
Product maintenance	Product maintenance	Product maintenance
Integration with major CI/CD tools	Integration with major CI/CD tools	Integration with major CI/CD tools
x	x	High-Availability built in
x	x	Multi-site replication
x	x	S3 Object storage support
x	x	Advanced storage sharding
x	24/7 SLA support	24/7 SLA support
x	x	x
x	JFrog Xray	JFrog Xray HA (Add-on Option)
x	x	JFrog Mission Control

Jfrog Artifactory Cloud Versions with cost-

1) Cloud Pro - $98/month

2) Cloud Pro X - $499/month

3) Cloud Enterprise - Annual Base rate(Need to take quotes from the cloud providers)

Cloud PRO   **Cloud pro X**   **Cloud Enterprise**

Base Package: 2GB data storage 10GB data transfer	**Base Package:** 125GB data storage 200GB data transfer	**Base Package:** Customized usage package
Unlimited No. of Repositories	**Unlimited No. of Repositories**	**Unlimited No. of Repositories**
Universal Repository: All package types supported	**Universal Repository:** All package types supported	**Universal Repository:** All package types supported
DevOps Eco System: Out-of-the-box integration with major CI/CD solutions	**DevOps Eco System:** Out-of-the-box integration with major CI/CD solutions	**DevOps Eco System:** Out-of-the-box integration with major CI/CD solutions
x	x	x
x	**Security & Compliance:** Full Xray security vulnerability scanning VulnDB data included Open-source license compliance	**Security & Compliance:** (optional) Full Xray security vulnerability scanning VulnDB data included Open-source license compliance
Scale as you go: Volume Discount	**Scale as you go:** Volume Discount	**Scale as you go:** Volume Discount
x	x	**Dedicated Server:** AWS, Azure, or GCP

Nexus Repository Manager Editions comparison-

Cost-

Nexus repo Pro - $10/per month/per user (10 users minimum)

Feature	2.x OSS	2.x Pro	3.x OSS	3.x Pro
Bower			✓	✓
Docker			✓	✓
Maven	✓	✓	✓	✓
npm	Limited	Limited	✓	✓
NuGet	✓	✓	✓	✓
Go			✓	✓
PyPI			✓	✓
RubyGems	✓	✓	✓	✓
YUM	✓	✓	✓	✓
APT			✓	✓
Git LFS			✓	✓

Git LFS			✓	✓
CocoaPods			✓	✓
Raw	✓	✓	✓	✓
P2		✓	Community	Community
Helm			Community	Community
CPAN			Community	Community
ELPA			Community	Community
CONAN			✓	✓
R			Community	Community
OBR		✓		
High Availability Clusters				✓

S3 Blob Store Plugin			✓	✓

Conclusion

Both Jfrog and Nexus provide different features and is a debatable topic to decide which one is superior. Although, it depends on the use case to choose which one to use.

Nexus has a better support and documentation. It has much better search and uses restful URLs.

The amount of functionality you get in their OSS is impressive and it allows you to script your own repository types. While this is a large thing to undergo having this flexibility is a nice idea. We can increase the extensibllity by the plugins available in the market place.

On the other hand, the Artifactory supports the most repository types, and has the best REST API. The Artifactory plugin for Jenkins is very mature. For the real complex searches Artifactory provides the Artifactory Query Language. AQL allows you to answer even the most advanced searches, but is limited to JFrog CLI and the REST API.

With the above comparison, I can conclude that Nexus is a better choice as per our requirements.