

# Sonatype Repository Management

## Nexus OSS, Nexus Pro, Nexus Pro CLM Edition

To meet the demands of our ever-changing modern business, software development is rapidly increasing yet the use of source code is dwindling in favor of new component-based development.

Most often, components are open source software that are shared among developers via public repositories, such as the Central Repository, and are downloaded and assembled into applications. More than 400,000 such components are available, such as web frameworks that form the foundation for web apps, logging mechanisms and database access routines to name just a few.

Unlike major open source infrastructure items like Linux or MySQL, an organization may use thousands of specific open source components to build their applications which adds to the complexity. In fact, since 80% of a typical application is now assembled from open source components, repository managers have become a “must have” technology for managing component usage.

A repository manager enables development teams to enjoy the benefits of agile component-based development in a streamlined and structured environment. For example:

- A repository manager reduces build times by enabling centralized, local access to components downloaded from public repositories as well as those created internally.
- A repository manager improves collaboration by providing a central location to store and manage common components used among developers and teams.
- A repository manager improves control by providing a mechanism to observe and control component usage.

Additionally, unlike any another alternative on the market, Sonatype Nexus Pro integrates component security, licensing, and popularity intelligence into the repository manager and enables drill down analysis and automated rules to guide component selection, usage, and distribution.

Repository managers are a foundational step in a broader trend towards component lifecycle management (CLM) which takes into account the entire lifecycle of a component, enabling visibility and control from design, through development and build, and in to production.

	Nexus OSS	Nexus Pro	Nexus Pro CLM Edition	Sonatype CLM
	Basic Repository	Advanced Repository	Repository-based Component Management	Complete Lifecycle Component Management
Repository Support	Basic Repository	Advanced Repository	Advanced Repository	Advanced Repository
Component Intelligence	Summary Component Intelligence Only	Summary and Detailed Component Intelligence	Summary and Detailed Component Intelligence	Summary and Detailed Component Intelligence
Policy Support	No Policy	No Policy	Define Policy	Define Policy / Risk Visualization
Policy Enforcement	No Enforcement	No Enforcement	Automated Enforcement – Staging	Automated Enforcement – Entire SLDC

Sonatype offers the industry’s most extensive suite of repository managers, including a unique focus on incorporating security in the development process. Developers can not only identify vulnerabilities – but also easily remediate – within the tools they use today and without slowing the development process.

## Problems Solved by Repository Managers

### Developer inefficiency

- Individual developers spend hours downloading redundant components directly to their desktop from public repositories.
- Production deployments have to run the entire build, from start to finish, to generate binaries for deployment.
- When you change your build or add a new dependency, your CI system downloads dependencies from the public repository. Therefore the speed of this process depends on the availability of this public resource to run builds.

### Lack of visibility & control

- There is no single view into the components that have been downloaded, who has used them and where they were used.
- Without a convenient, clear view of component vulnerabilities, organizations are inadvertently exposed to security and licensing risks.
- It is difficult to properly manage staging and promotion during the release process.

### Inability to share and collaborate

- Without the proper sharing of tools and policies, all developers may not reap the benefits of re-using existing components. Sharing across multiple development teams becomes even more difficult, and increasingly so with geographically distributed teams.
- Without an established mechanism for publishing source or binary artifacts, sharing with external partners means granting them access to your software management configuration software (SCM).
- The source control repository which is intended to store source code becomes the ad hoc filing system for binary builds.
- Third party or internal libraries are passed around from developer to developer via a network drive or using email attachments with some ad-hoc instructions.

## Benefits

### Faster and more reliable builds

Caching components locally eliminates the need to download dependencies over the Internet, saving time and eliminating the risk that the Internet or remote server won't be available during the build.

### Improve collaboration

A repository manager provides a mechanism for developers to share binary components for internally developed software projects. The repository manager becomes a deployment target when components are created, and the canonical source of both internally developed and open source components for use in development.

## BENEFITS CONTINUED

### Component usage visibility

By examining the components present in the repository manager, you'll have visibility into what internally developed components are available and what components developers have downloaded from public repositories.

### Enforce component standards

Problematic components that don't meet your standards can be kept out of the repository so developers won't use them. The challenge is to ensure that all developers and build systems acquire components only from the enterprise repository manager.

### Control sharing with partners

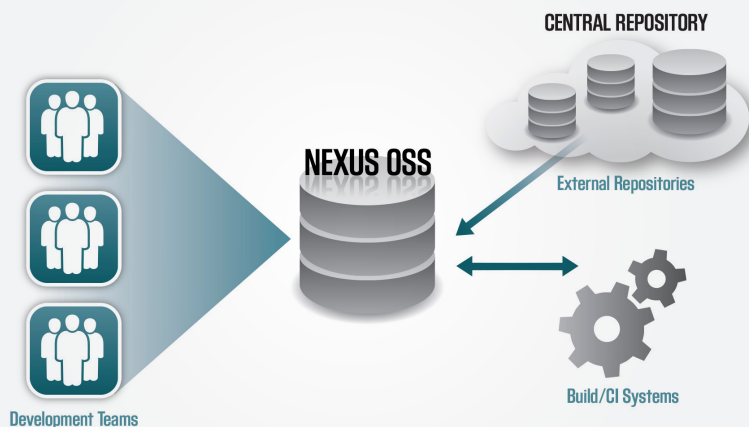
Partner-specific repositories with access controls allow you to choose which components and projects to share.

### Ideal repo for robust governance

Nexus Pro provides the repository foundation for the complete Sonatype CLM solution, providing governance throughout the entire software lifecycle.

## Nexus OSS

Nexus OSS is a free repository made available to users of the Central Repository. With 20,000 users, Nexus OSS is the most popular repository manager in use today. It can be used to store and retrieve downloaded components and metadata locally and manage deployment of custom binaries.



Nexus OSS is a free repository available to users of the Central Repository. It is a robust and reliable choice for basic repository management functionality.

Nexus OSS is a robust and reliable choice for basic repository management functionality including:

- Storing and retrieving binary components
- Caching and proxying remote component repositories to speed builds
- Integrating with all major build tools: Ant, Gradle, Ivy, and Apache Maven

Nexus OSS is ideal for smaller groups or for organizations that do not have the need sophisticated component management.

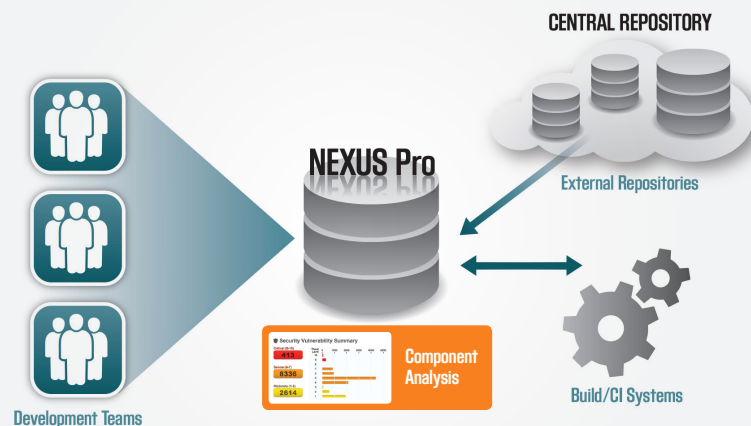
## Nexus Pro

Building on the extensive feature set of Nexus OSS, Nexus Pro adds robust capabilities and 24x7 support for more demanding repository management requirements. Whether you have thousands of developers distributed around the globe, or smaller teams with demanding requirements, Nexus Pro delivers immediate game-changing developer efficiencies, such as:

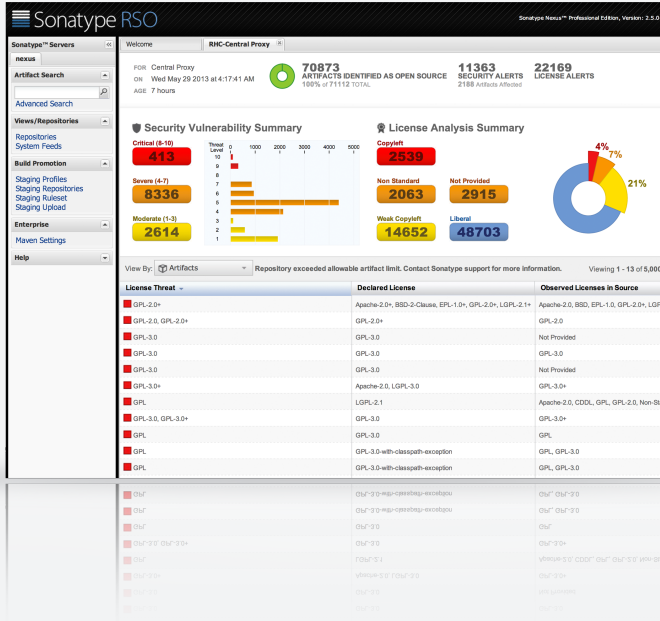
- Smart proxy to improve availability and scalability
- 24x7 expert technical support including Service Level Agreements (SLA)
- Build promotion and staging support (with policy automation option)
- Enterprise LDAP to control user permissions
- Advanced security with user tokens and single sign-on
- Component white and black lists with procurement controls
- Support for all build tools: Ant, Ivy, Gradle, Maven
- Comprehensive repository support for Java, .NET, OSGi, Yum
- Built-in Repository Health Check with component security, licensing, popularity data

Once you start using Nexus Pro as a sharing mechanism across development teams, each team can then focus on smaller, more manageable systems. The web application team can focus on the code that directly supports the web application while it depends on the binary software artifacts from a team managing the back-end server logic.

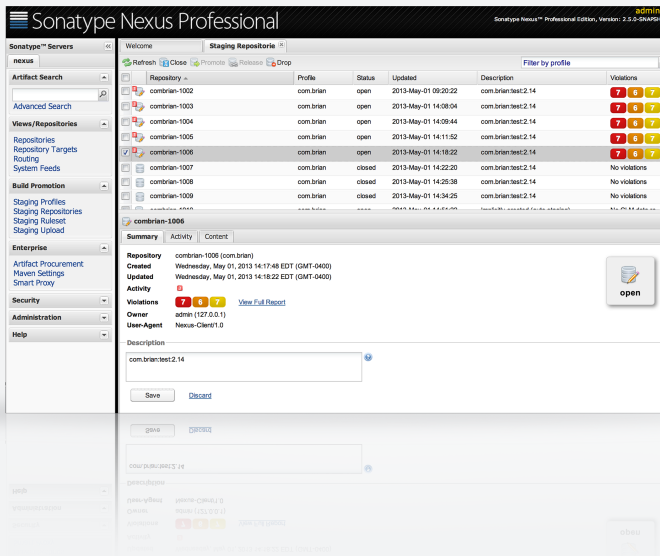
Since Nexus Pro is built for large, enterprise scale deployments and supports multiple repository formats and languages, it can also be used to consolidate repositories.



Building on the extensive feature set of Nexus OSS, Nexus Pro adds 24x7 support and more robust capabilities such as built-in smart proxy and component analysis.



The Nexus Pro Repository Health Check provides detailed security, licensing and popularity data that helps you measure and avoid risk.



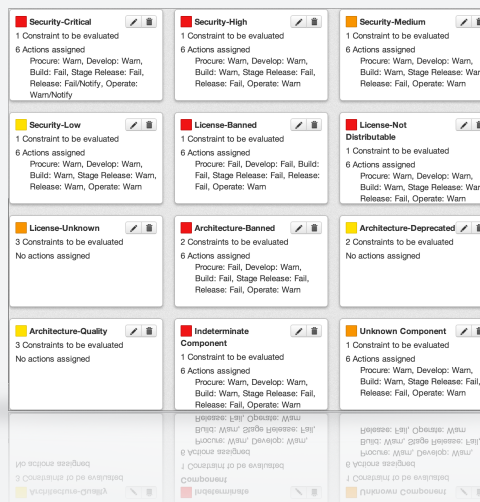
Nexus Pro provides visibility into the components that violate your security, licensing and architecture policies.

*"Nexus is super easy to set up and update. You'll waste time trying to find another way to manage your binaries. The project is very active, the support is awesome and all the features you'd need are there."* Alexis Morelle, Software Factory Architect, Alcatel-Lucent

## Nexus Pro CLM Edition

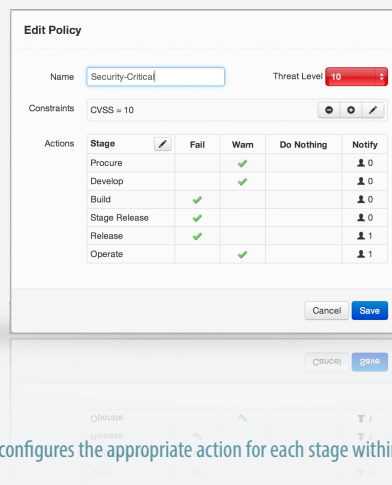
Nexus Pro CLM extends Nexus Pro to allow greater control over component usage and creates an easy path toward complete component lifecycle management. Nexus Pro CLM includes everything in Nexus Pro, plus the ability to define policies based on component security, licensing, and popularity information and automatically enforce those policies during build promotion and staging. For example:

- Security, licensing and architecture policies are easily defined and enforced during build promotion and staging using Nexus Pro CLM Edition. Sonatype CLM supports the entire software lifecycle including procure, develop, build and operate stages.



Sonatype CLM security, licensing and architecture policies configured for different application types.

- Component governance features automate policy management and approvals so that you can better manage the release process using the repository manager. Sonatype CLM extends this throughout the software lifecycle with enforcement points in the IDE and CI Server.



Policy editor that configures the appropriate action for each stage within the software lifecycle.

*"It is impossible to do serious development without a repository manager. And the only one on the market that is serious is Nexus. Arnaud Heritier, Software Factory Manager, eXo*

## Features Comparison

	Nexus OSS	Nexus Pro	Nexus CLM	
Storage & Retrieval of Binary Artifacts	X	X	X	Easily store & retrieve binary artifacts to speed your development efforts.
Manage Deployment of Custom Binaries	X	X	X	Custom binary support allows you to manage your development efforts.
Smart Proxy	Basic Proxy & cache	X	X	Enhanced proxy functionality scales to support the largest deployments.
High Availability		X	X	Reliable access to the latest components ensures continuity of operations.
Technical Support		X	X	Tech support with guaranteed SLA from the founders of Central & Nexus.
Build Promotion & Staging		X	X	Improve development processes & collaboration with managed promotion.
Authentication & Access Control		X	X	LDAP, Crowd & fine grain access control secures your critical infrastructure.
Secure Delivery		X	X	SSL secures the delivery channel helping to eliminate MITM attacks.
Artifact Procurement		X	X	Manage component downloads & usage with simple black, white lists.
Comprehensive Repo & Build Tool Support		X	X	Robust build and repo support (Maven, Ant/Ivy, Gradle) extends value of Nexus.
Hosted & Group Repositories		X	X	Single virtual location for sharing and publishing artifacts speeds development.
Integration Support		X	X	IDE, Central Repo & build tool integration provides value throughout the lifecycle.
Robust Search		X	X	Rich metadata search facilitates component identification & selection.
Repository Health Check	Summary View only	X	X	Assess the state of your repository and identify quality, licensing and security issues.
Centralized Policy Administration			X	Define policies to codify your security, licensing and quality standards.
Build Promotion Policy Enforcement			X	Enforce policy to ensure that security, license and quality standards are met.

## Next Steps

To learn more about Sonatype Repository Managers, please visit [www.sonatype.com](http://www.sonatype.com)

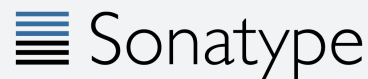
For a free trial of Nexus Pro, please visit [www.sonatype.com/nexus/free-trial](http://www.sonatype.com/nexus/free-trial)

To better understand the role and risk of components in your organization, please check out our complimentary risk assessment at [www.sonatype.com/go-fast-be-secure](http://www.sonatype.com/go-fast-be-secure)

## About Sonatype

Sonatype has been on the forefront of creating tools to manage, organize, and better secure components since the inception of the Central Repository and Maven in 2001. Today, over 70,000 companies download over 8 billion components every year from the Central Repository, demonstrating the explosive growth in component-based development. Today's software ecosystem has created a level of complexity that is increasingly hard to manage. Partnering with application developers, security professionals and the open source community, Sonatype has introduced a way to keep pace with modern software development without sacrificing security. We call it Component Lifecycle Management (CLM), the new platform for securing the modern software supply chain.

We believe that to achieve application security, the approach has to be simple to use, integrated throughout the lifecycle and ensure sustaining trust. With CLM we're improving the visibility, management and security of component-based development across the entire lifecycle. Together with our customers, we're ushering in a new era of application security.



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