



Package Management

DevOps Course

Agenda

- ✦ Introduction
- ✦ Package Management Systems
- ✦ Artifactory Overview
- ✦ Artifactory Vs Nexus
- ✦ Demo

What is Package Management?

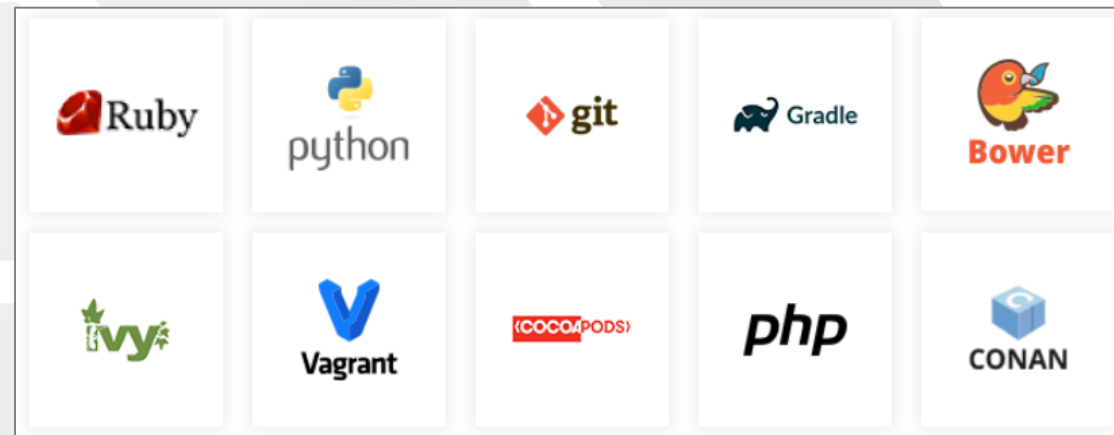
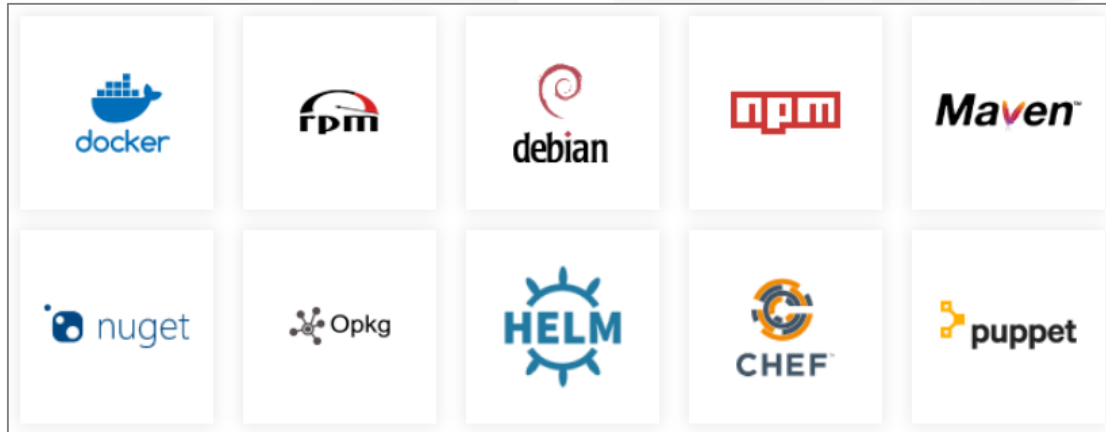
✦ Is a collection of software tools that automates the process of installing, upgrading, configuring, and removing computer programs for a computer's operating system in a consistent manner.



Reasons to use a Binary Repository Manager

- ✦ System stability and reliability (HA)
- ✦ Managing many binaries across different environments
- ✦ Security, Access Control and Traceability
- ✦ Quickly replicate repositories to remote sites
- ✦ Can be used for caching
- ✦ Retention policies

Package Management Systems



Nuget

✦ Used for C#

```
<?xml version="1.0"?>
<package>
  <metadata>
    <id>MyOAuthCustomTestingdependency2</id>
    <version>1.3.0</version>
    <authors>ASHISH KUMAR</authors>
    <owners>ASHISH KUMAR</owners>
    <requireLicenseAcceptance>false</requireLicenseAcceptance>
    <description>To Test OAuth</description>
    <releaseNotes>Testing OAuth.</releaseNotes>
    <copyright>Copyright 2014-15</copyright>
    <tags>C# Asp.net</tags>
    <dependencies>
      <dependency id="DotNetOpenAuth" version="4.3.4.13329" />
      <dependency id="DotNetOpenAuth.AspNet" version="4.3.4.13329" />
      <dependency id="Microsoft.Net.Http" version="2.2.18" />
      <dependency id="Newtonsoft.Json" version="6.0.1" />
    </dependencies>
  </metadata>
</package>
```



Maven

✦ Used for java

```
<dependencies>
  <dependency>
    <groupId>com.mycompany</groupId>
    <artifactId>MavenEnterpriseApp-ejb</artifactId>
    <version>1.0-SNAPSHOT</version>
    <scope>provided</scope>
  </dependency>
  <dependency>
    <groupId>javax</groupId>
    <artifactId>javaee-api</artifactId>
    <version>7.0</version>
    <type>jar</type>
  </dependency>
  <dependency>
    <groupId>javax</groupId>
    <artifactId>javaee-web-api</artifactId>
    <version>7.0</version>
    <scope>provided</scope>
  </dependency>
</dependencies>
```



NPM

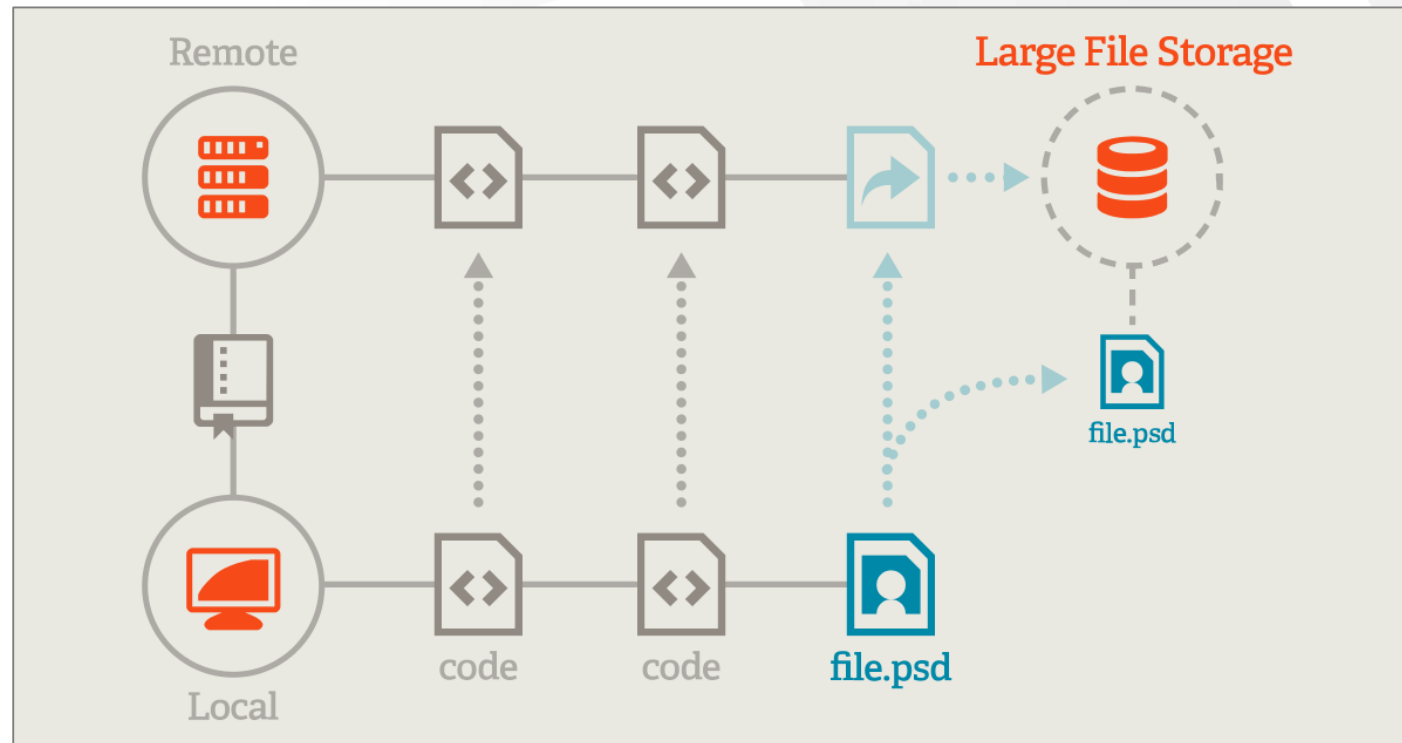
🚀 Used for nodejs

```
1 {
2   "name": "test",
3   "version": "1.0.0",
4   "description": "",
5   "main": "index.js",
6   "scripts": {
7     "test": "echo \"Error: no test specified\" && exit 1"
8   },
9   "author": "",
10  "license": "ISC",
11  "dependencies": {
12    "body-parser": "^1.18.2"
13  },
14  "devDependencies": {
15    "mocha": "^5.0.1"
16  }
17 }
```



Git LFS

⚡ Used for Git (binaries)



What is JFrog Artifactory

- ✦ JFrog Artifactory is an open source project
- ✦ It's an advanced repository manager
- ✦ Manage all binary artifacts efficiently in a single place
- ✦ Accelerate your development workflow
- ✦ Manage full artifact lifecycle



Automating Processes

✦ JFrog CLI

- ✦ Client that provides a simple interface to interact with Jfrog products

✦ Rest API

- ✦ Artifactory exposes a useful Rest API that can be used to interact with the server.



Artifactory Editions

- ✦ Artifactory OSS
- ✦ Artifactory Pro
- ✦ Artifactory SaaS
- ✦ Artifactory SaaS (dedicated server)
- ✦ Artifactory Enterprise



Repository Types

✦ Local Repositories

- ✦ Are physical, locally-managed repositories into which you can deploy artifacts.

✦ Remote Repositories

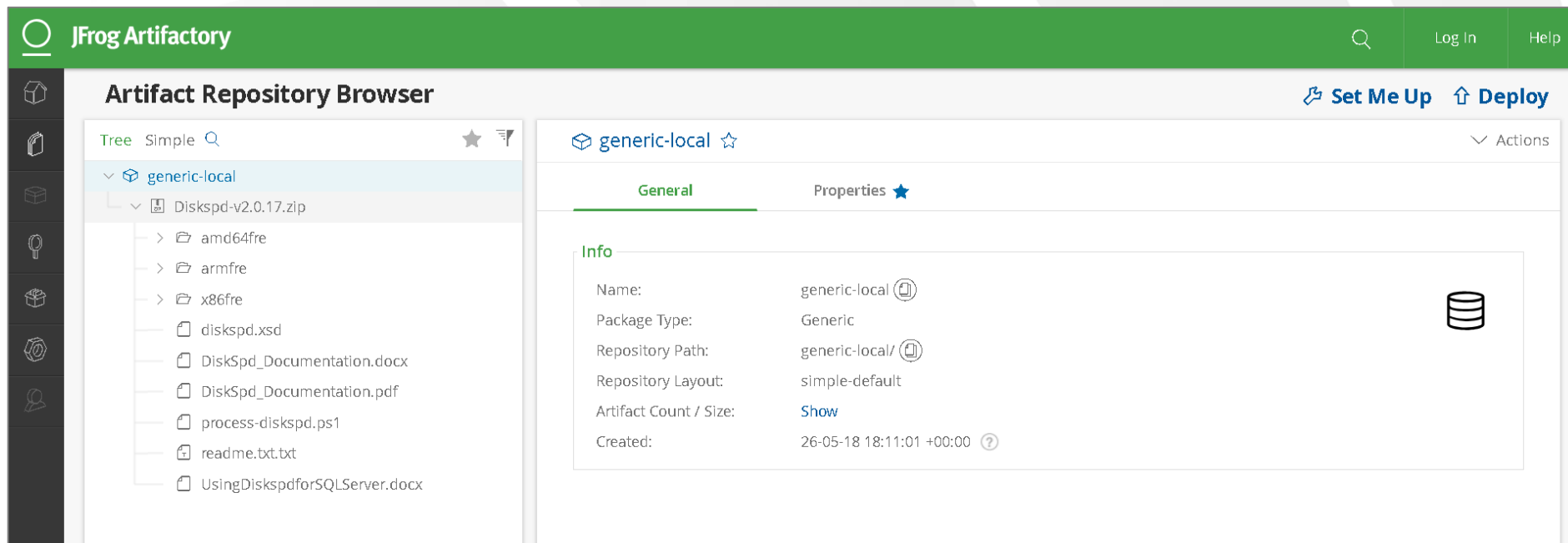
- ✦ Serves as a caching proxy for a repository managed at a remote URL.

✦ Virtual Repositories








- ✦ Aggregates several repos with the same package type under a common URL.

Generic Repositories Overview

- ✦ It's a repository without any particular packaging type
- ✦ You can upload packages of any type (zip/tar files for example)



Artifactory Vs Nexus

Component Format	Nexus Repository OSS	Artifactory OSS
 Java	FREE	FREE
 npm	FREE	☹
 Rubygems	FREE	☹
 Docker	FREE	☹
 Maven	FREE	☹
 NuGet	FREE	☹
 Python	FREE	☹

- ✦ DB vs Filesystem
- ✦ SaaS
- ✦ Rest API
- ✦ Extensibility (Plugins)
- ✦ Search
- ✦ Repository Support

✦ <https://binary-repositories-comparison.github.io/>

Questions



Package Management

Demo

