

# USING SOFTWARE MODULES — WELCOME TO HELL!

A photograph of a city skyline at night, possibly Atlanta, Georgia, with the Georgia Dome visible on the left. The sky is filled with dark, billowing smoke or fire, creating a dramatic and apocalyptic atmosphere.

# About your speaker

[linkd.in/jbaruch](https://linkd.in/jbaruch)

[@jbaruch](https://github.com/jbaruch)



Baruch Sadogursky

J\*, G\* and Public Speaking Geek with JFrog FTW.  
Israel | Computer Software

Current

Developer Advocate at JFrog Ltd



[stackoverflow.com/users/402053/jbaruch](https://stackoverflow.com/users/402053/jbaruch)

# Developer who?

Job Description:

1. Hang out  
with DevOps

2. Talk about it

# Developer who?



# What Frog?



# What Frog?

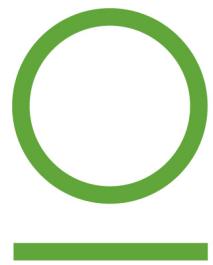


# What Frog?

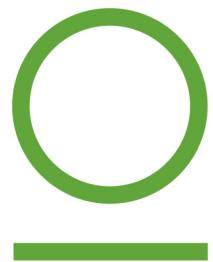


# What Frog?

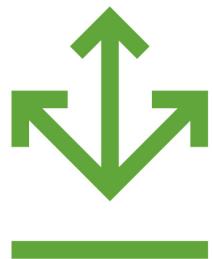




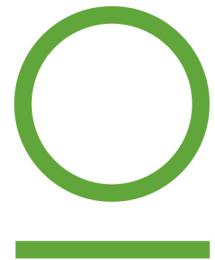
JFrog Artifactory



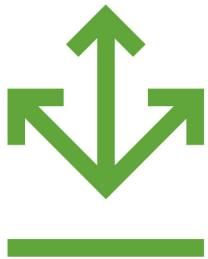
JFrog Artifactory



JFrog Bintray



JFrog Artifactory



JFrog Bintray



JFrog Mission Control

**BRACE YOURSELVES,**

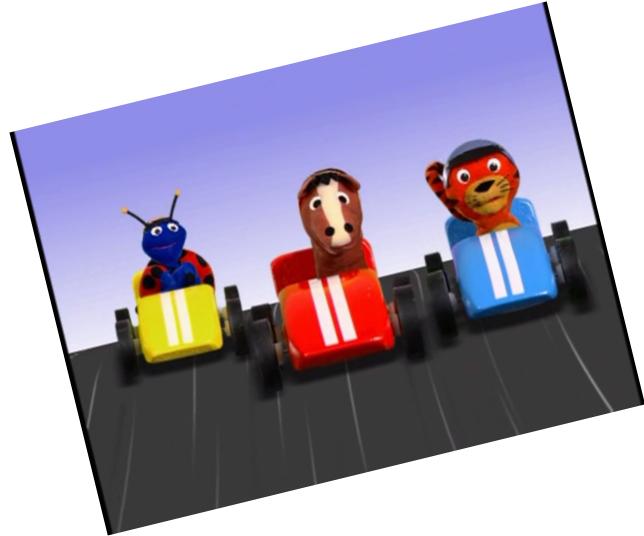


**MEMES ARE COMING**

quickmeme.com

# Agenda

- ✓ 181 slides
- ✓ 40 memes



# Package management system

From Wikipedia, the free encyclopedia

In software, a **package management system**, also called **package manager**, is a collection of software packages for a computer's operating system in a consistent manner. It typically maintains a database of prerequisites.

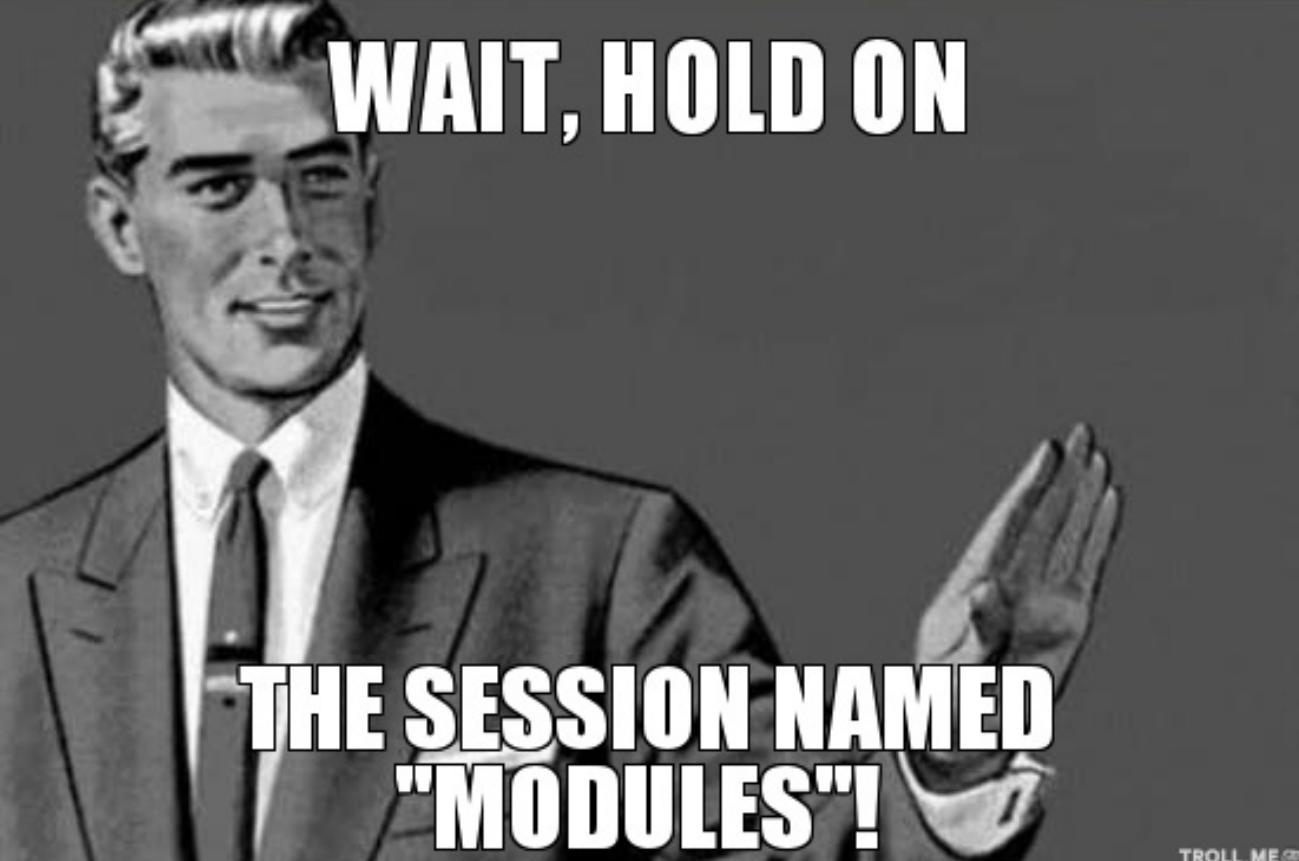
Packages are distributions of software, applications and data. Packages also contain metadata, such as a list of dependencies necessary for the software to run properly. Upon installation, metadata is stored in

Package management systems are designed to save organizations time and money through remote access and updates. This can be particularly useful for large enterprises whose operating systems are based on distinct software packages; in the former case, a package management system is a convenience, in the latter it is a

**Contents** [hide]

# TL;DR





**WAIT, HOLD ON**

**THE SESSION NAMED  
"MODULES"!**

# Packages & Modules

Modules

Packages

# Packages & Modules

Modules	Packages
API development	

# Packages & Modules

Modules	Packages
API development	Installable runtime

For the sake of this talk



# Modules, modules, modules

# Modules, modules, modules

System

**dpkg, RPM, tgz, pacman, ipkg, pkgutils, PETget, Upkg, PISI, nix, Equo, Conary, tazpkg, App Store, MacPorts, fink, Homebrew, Google Play, GetJar, Amazon Appstore, Cygwin, Npackd, Steam, Chocolatey, NSIS, IPS, Docker, Vagrant**

# Modules, modules, modules

System

**dpkg, RPM,**  
App Store,

Steam

Homebrew, Google Play,

Docker, Vagrant

# Modules, modules, modules

System

**dpkg, RPM, App Store, Homebrew, Google Play, Steam, Docker, Vagrant**

# Modules, modules, modules

System

**dpkg, RPM, App Store, Homebrew, Google Play, Steam, Docker, Vagrant**

Dev.

Cabal, Composer, CPAN, CRAN, Python eggs, **Ivy, Maven, Gradle, sbt, leiningen, PyPI, NuGet, RubyGems, Quicklisp, CocoaPods**

# Modules, modules, modules

System

**dpkg, RPM, App Store, Homebrew, Google Play, Steam, Docker, Vagrant**

Dev.

PyPI, NuGet, RubyGems,

Ivy, Maven, Gradle, sbt,  
CocoaPods

# Modules, modules, modules

System

**dpkg, RPM, App Store, Homebrew, Google Play, Steam, Docker, Vagrant**

Dev.

**Ivy, Maven, Gradle, sbt, PyPI, NuGet, RubyGems, CocoaPods**

# Modules, modules, modules

System	<b>dpkg, RPM, App Store, Homebrew, Google Play, Steam, Docker, Vagrant</b>
Dev.	<b>Ivy, Maven, Gradle, sbt, PyPI, NuGet, RubyGems, CocoaPods</b>
Framework	<b>RoR, Grails, jQuery, Node.js, Spring Roo, JBoss Forge, Play, Chef, Puppet, Eclipse, Docker</b>

# Modules, modules, modules

System	<b>dpkg, RPM, App Store, Homebrew, Google Play, Steam, Docker, Vagrant</b>
Dev.	<b>Ivy, Maven, Gradle, sbt, PyPI, NuGet, RubyGems, CocoaPods</b>
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System	<b>dpkg, RPM, App Store, Homebrew, Google Play, Steam, Docker, Vagrant</b>
Dev.	<b>Ivy, Maven, Gradle, sbt, PyPI, NuGet, RubyGems, CocoaPods</b>
Framework	<b>RoR, Grails, jQuery, Node.js, Spring Roo, Chef, Puppet, Eclipse</b>
Application	<b>Any pluggable application!</b>

**OK, LOTS OF MODULES**

**NOW WHAT?!**

fACDdb

DRAGON STORIES

AHEAD!

f

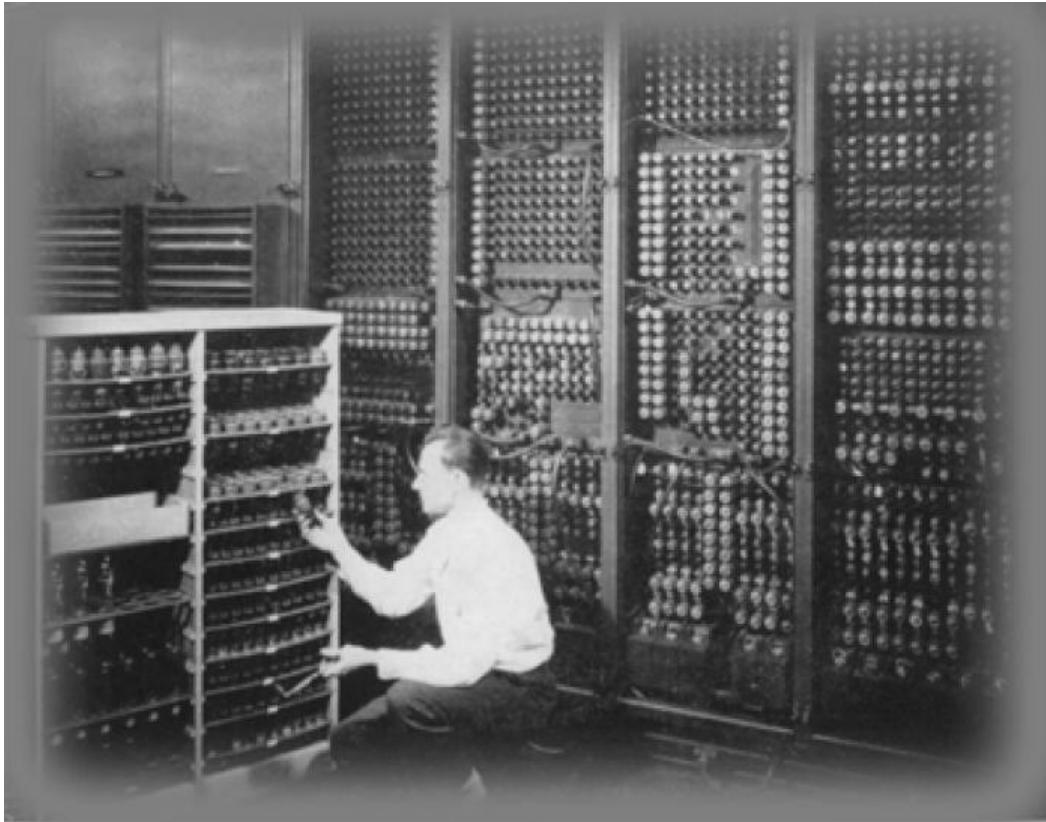
STORY NUMBER ONE

, A STORY OF INDEXES +

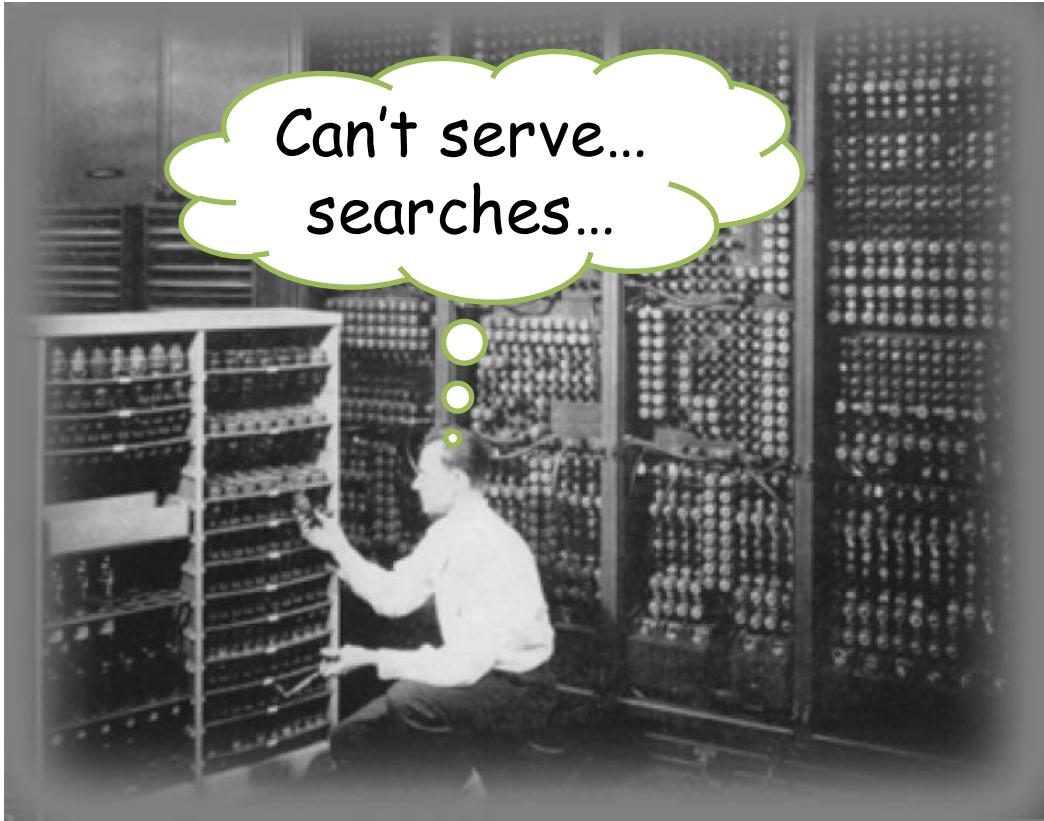
, A STORY OF INDEXES +

< KEPT IN WRONG PLACE >

# Once Upon A Time...



# Once Upon A Time...



Can't serve...  
searches...

# Not anymore...



 **@GeorgeBray**  
George Bray

Your mobile phone has more computing power than all of NASA in 1969. NASA launched a man to the moon. We launch a bird into pigs.

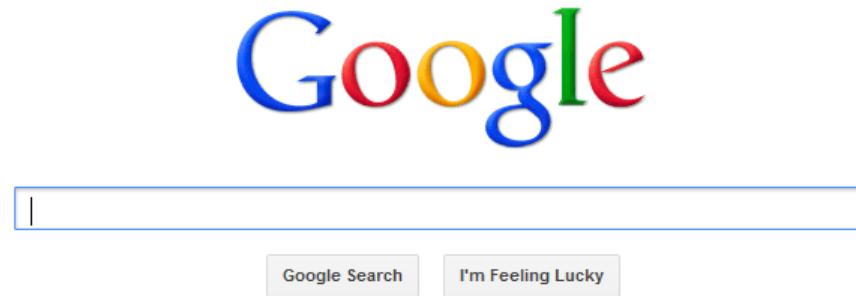
22 Mar via web

Retweeted by [ipajdakovic](#) and 100+ others

---



# Look ma, no index download!





**SO WHY WE STILL HAVE TO**

**DOWNLOAD INDEXES FOR  
MAVEN?!**

TROLL ME®

## Maven Indexer: Sonatype's Donation to Repository Search

February 1, 2011 By Tim O'Brien



We create a search index for the Maven repository so that you don't have to. What does this mean for you? It means that you don't have to run a "little Google" in your datacenter just to search for the latest log4j library, and you also don't have to sacrifice Terabytes of bandwidth to download thousands of artifacts you'll never use to just to find the handful you need for your project. This is all done for you on Central, and the tools you use to search Central, Nexus and m2eclipse all benefit from this pre-made index file.

While this seems like such a simple idea, the Maven ecosystem hasn't had a standard way to search the repository for



- Have to download huge files

**Before Searching**

- Have to download huge files
- ## Before Searching
- Updated rarely

- Have to download huge files
- ## Before Searching
- Updated rarely
  - Requires special client

- Have to download huge files
- ## Before Searching

- Updated rarely
- Requires special client

F-

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While this seems like such a simple idea, the Maven ecosystem hasn't had a standard way to search the repository for

## Maven Indexer: Se

February 1, 2011 By Tim C

 Like 0

 Tweet 4

We create a search index for you so you don't have to run a "little C to sacrifice Terabytes of bandwidth for your project. This is all done benefit from this pre-made index.

While this seems like such a



## earch

his mean for you? It means that library, and you also don't have just to find the handful you need. Nexus and m2eclipse all

av to search the repository for

# Who's good, who's not?

NuGet

RubyGems

PyPi

Docker

Vagrant



Deb

RPM

Maven

CocoaPods

# Who's good, who's not?

NuGet

RubyGems

PyPi

Docker

Vagrant



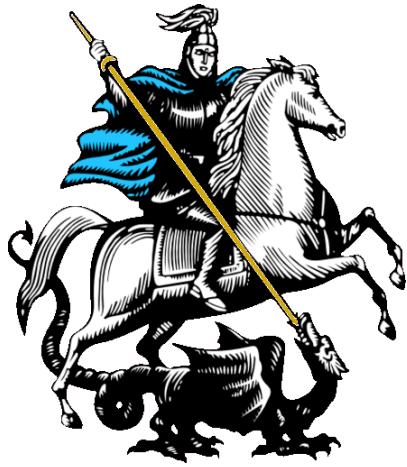
Good Excuse:  
old tools

Deb

RPM

Maven

CocoaPods

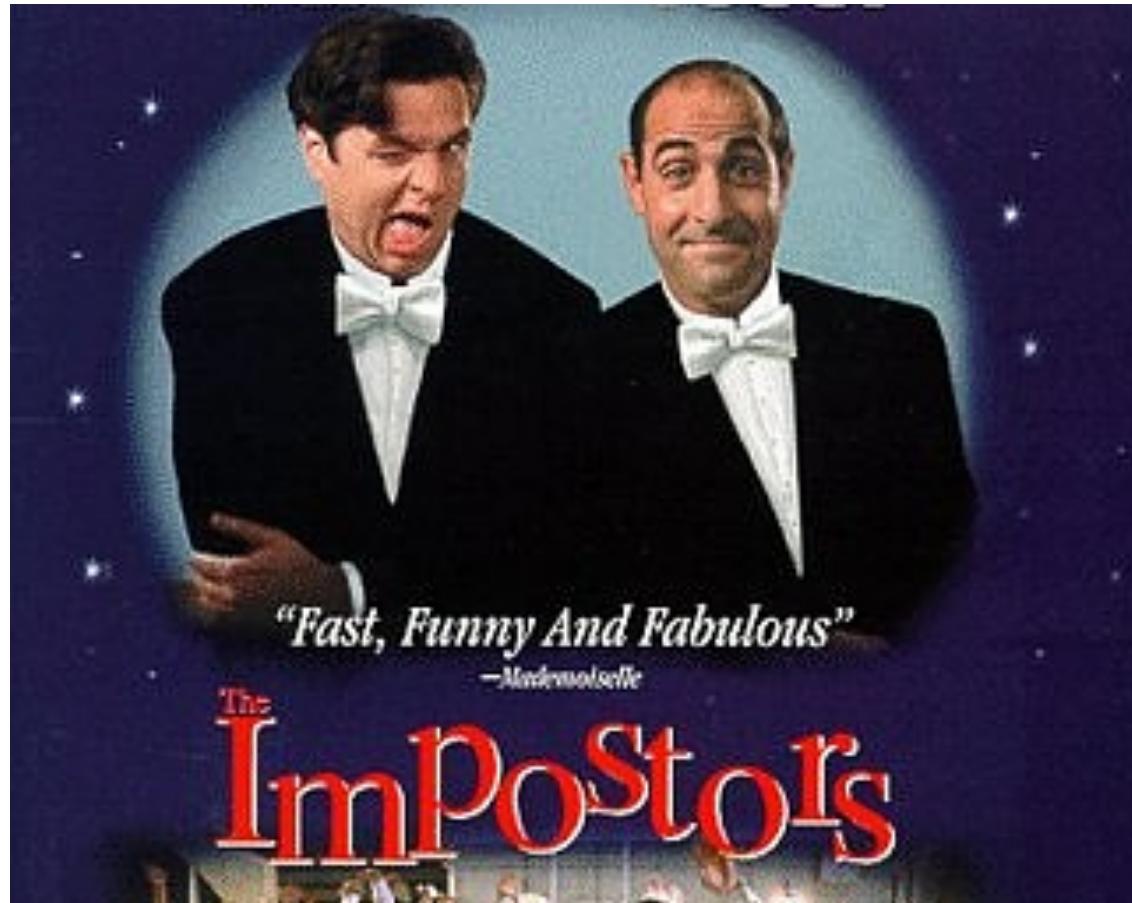


## Lesson learned

Index on the server-side,  
expose query API

A

STORY NUMBER TWO





# Heinrich Heine



**Born**

Harry Heine  
13 December 1797  
Düsseldorf

**Died**

17 February 1856 (aged 58)  
Paris, France

**Occupation**

Poet, essayist, journalist,  
literary critic

**Nationality**

German



# Heinrich Heine

# WWW.TRUSTEDTIMESTAMPING.COM

## SKS PGP PUBLIC KEY SERVER

Trusted!

This key server is for PGP, OpenPGP and GPG keys.

When entering the 8 digit key id, do not forget to put '0x' in front of it. E.g. 0x1f28d8ae.

### EXTRACTING A PGP KEY

index

verbose index

Search string:

show "fingerprints" for keys

only return exact matches

# Search results for 'heinrichh'

Type	bits/keyID	Date	User ID
pub	2048R/ <a href="#">5FF6616A</a>	2013-01-15	Heinrich Heine (I love security) < <a href="mailto:heinrichh@duesseldorf1.de">heinrichh@duesseldorf1.de</a> >
	Fingerprint=753A E364 727A 959A 98D9 8F9E 8A60 A4A2 6FFF 616A		
pub	4096R/ <a href="#">0A6F3796</a>	2012-11-10	Ana Beatriz Guerrero LÃ³pez (You are using the 'utf-8' character set.) < <a href="mailto:heinrichh@duesseldorf.de">heinrichh@duesseldorf.de</a> >
	Fingerprint=66C5 2B6B 95C8 D9EC 74FC 8B07 4756 CE82 0A6F 3796		
pub	1024D/ <a href="#">39875EDA</a>	2011-08-07	einrich Heine < <a href="mailto:heinrichh@duesseldorf.de">heinrichh@duesseldorf.de</a> >
	Fingerprint=E591 AD6E 9453 EC00 ACEB 4867 CADC 1461 3987 SEDA		
pub	4096R/ <a href="#">B04B296F</a>	2011-06-09	Heinrich Heine (Der Dichter) < <a href="mailto:heinrichh@duesseldorf.de">heinrichh@duesseldorf.de</a> >
	Fingerprint=8689 343D 6DEF F8CF 9874 C3E4 9A53 9A2E B04B 296F		
pub	1024D/ <a href="#">51EBE1F3</a>	2010-05-16	Heinrich Heine (Der Dichter) < <a href="mailto:heinrichh@duesseldorf.de">heinrichh@duesseldorf.de</a> >
	Fingerprint=E7B2 5402 7F97 4BB3 C1E5 5E7F E18F 0669 51EB E1F3		
pub	1024D/ <a href="#">C3D9A30F</a>	2010-05-09	Heinrich Heine < <a href="mailto:heinrichh@duesseldorf.de">heinrichh@duesseldorf.de</a> >
	Fingerprint=C22E BE7C 6F68 BE0A 9775 C20A 7718 46FC C3D9 A30F		
pub	1024D/ <a href="#">7AF8547F</a>	2010-05-04	nilesh (hereisthekey) < <a href="mailto:heinrichh@duesseldorf.de">heinrichh@duesseldorf.de</a> >
	Fingerprint=891E B12A FC6B 2E03 C84F 622B 9BFE 1A0B 7AF0 547F		
pub	2048R/ <a href="#">F7550447</a>	2010-05-03	Heinrich Heine (Der Dichter) < <a href="mailto:heinrichh@duesseldorf.de">heinrichh@duesseldorf.de</a> >
	Fingerprint=D657 8F24 6C5B 1806 05D0 BB9E C229 CF2B F755 0447		
pub	1024D/ <a href="#">9125727B</a>	2010-02-03	heinrichh < <a href="mailto:heinrichh@gpg4win.de">heinrichh@gpg4win.de</a> >
	Fingerprint=EFA7 BCA0 8BAC A1FD 3038 DB09 AE17 CED2 9125 727B		
pub	2048R/ <a href="#">4F0FA59A</a>	2009-05-14	Heinrich Heine (Der Dichter) < <a href="mailto:heinrichh@duesseldorf.de">heinrichh@duesseldorf.de</a> >
	Fingerprint=2A61 E798 42A1 B9A6 07D2 1812 5A55 COE7 4F0F A59A		
pub	1024D/ <a href="#">94404C02</a>	2009-04-07	monkey < <a href="mailto:cremas@dssoap.gdf">cremas@dssoap.gdf</a> >
	Heinrich Heine < <a href="mailto:heinrichh@duesseldorf.de">heinrichh@duesseldorf.de</a> >		
	Fingerprint=1360 D2E3 2DFC 98A8 AEB8 89C0 ADC7 A099 9440 4C02		

pub 1024D/**F9966DF8** 2009-01-23 **franco franco (ppa key) <heinrichh@duesseldorf.de>**  
Fingerprint=791B B83B 5996 2A28 7C78 2E73 9EF0 834B F996 6DF8

---

pub 1024D/**B1438145** 2009-01-21 **Heinrich Heine <heinrichh@web.de>** Smart ass!  
Fingerprint=BE22 B3DF 2209 41DC BEE4 171C 04F8 EA6A B143 8145

---

pub 4096R/**0643A62E** 2008-10-29 **Heinrich Heine (aa) <heinrichh@duesseldorf.de>**  
Fingerprint=B566 3E1F DF6E D702 B62B ADBA 0F1B 5960 0643 A62E

---

pub 4096R/**0BEEB29A** 2008-10-28 **Der Dichter <heinrichh@dues.de>**  
Fingerprint=D08C C280 DA2B A00F D74A 660E D468 EC6A 0BEE B29A

---

pub 1024D/**C84BE756** 2008-02-20 **Heinrich Heine (Der Dichter) <heinrichh@duesseldorf.de>**  
Fingerprint=1D5B 8FB7 85E7 9FB3 8B8C 1811 06F7 8BBC C84B E756

---

pub 1024D/**1B6715EA** 2007-09-11 **heinrich heine <heinrichh@gpg4win.de>**  
Fingerprint=0077 D74D 9A48 1468 DD3D 1D77 E389 C12F 1B67 15EA

---

pub 1024D/**EFC21DD6** 2006-11-09 **Heinrich Heine <heinrichh@gpg4win.de>**  
Fingerprint=2A05 F3D1 1885 64B4 3203 6FFF4 E626 322B EFC2 1DD6

---

pub 1024D/**A8316E71** 2006-10-16 **Heinrich Heine (Der Dichter) <heinrichh@duesseldorf.de>**  
Fingerprint=73A7 F5FC 4EF4 6C7D 6972 18C1 2CF0 29E8 A831 6E71

---

pub 768D/**447DF6AE** 2004-06-25 **Heinrich Heine <heinrichh@duesseldorf.de>**  
Fingerprint=5B59 D22B F0DD 2EA6 6BA2 AC61 67D3 3D7B 447D F6AE

---

pub 1024D/**DEA8DFA5** 2004-04-05 **Heinrich Heine (Der Dichter) <heinrichh@duesseldorf.de>**  
Fingerprint=0A2D E77F 990C 80F2 ACA6 7859 FBBE ED30 DEA8 DFA5

---

FTW! → pub 1024G/**E5974C0B** 2003-09-27 **Wolfgang Mozart (Der Musiker)**  
Heinrich Heine (Der Dichter) <heinrichh@duesseldorf.de>  
Fingerprint=CE9A D43F F7B6 F788 7502 4593 AB97 C7F3 E597 4C0B

---

pub 1024D/**B006D13F** 2003-04-06 **Heinrich Heine (Der Dichter) <heinrichh@duesseldorf.de>**  
Fingerprint=054D 97AE 7FB4 ABC0 0FA6 2B60 8772 ECDA 8D06 D13F

---

pub 1024D/**B06E3524** 1997-09-28 **Heike Heinrich <heinrichh@chc.ef.eunet.de>**  
Fingerprint=8394 27EB 2525 AAB8 E84C Z52D FA28 81D0 B06E 3524

**HEINRICH HEINE**

**WRITES CODE?!**



**gpg --gen-key**

gpg (GnuPG) 1.4.11; Copyright (C) 2010 Free Software Foundation, Inc.  
This is free software: you are free to change and redistribute it.  
There is NO WARRANTY, to the extent permitted by law.

gpg: directory `/home/noam/.gnupg' created  
gpg: new configuration file `/home/noam/.gnupg/gpg.conf' created  
gpg: WARNING: options in `/home/noam/.gnupg/gpg.conf' are not yet active during this run  
gpg: keyring `/home/noam/.gnupg/secring.gpg' created  
gpg: keyring `/home/noam/.gnupg/pubring.gpg' created

Please select what kind of key you want:

- (1) RSA and RSA (default)
- (2) DSA and Elgamal
- (3) DSA (sign only)
- (4) RSA (sign only)

Your selection?

RSA keys may be between 1024 and 4096 bits long.

What keysize do you want? (2048)

Requested keysize is 2048 bits

Please specify how long the key should be valid.

- 0 = key does not expire
- <n> = key expires in n days
- <n>w = key expires in n weeks
- <n>m = key expires in n months
- <n>y = key expires in n years

Key is valid for? (0)

Key does not expire at all

Is this correct? (y/N) y

You need a user ID to identify your key; the software constructs the user ID  
from the Real Name, Comment and Email Address in this form:  
"Heinrich Heine (Der Dichter) <heinrichh@duesseldorf.de>"

Real name:

Name	Last Modified	Size
<a href="#">..</a>		
<a href="#">jquery-1.6.2.jar</a>	02-Nov-2012	100.7 K
<a href="#">jquery-1.6.2.jar.asc</a>	02-Nov-2012	490 B
<a href="#">jquery-1.6.2.jar.asc.md5</a>	02-Nov-2012	32 B
<a href="#">jquery-1.6.2.jar.asc.sha1</a>	02-Nov-2012	40 B
<a href="#">jquery-1.6.2.jar.md5</a>	02-Nov-2012	32 B
<a href="#">jquery-1.6.2.jar.sha1</a>	02-Nov-2012	40 B
<a href="#">jquery-1.6.2.pom</a>	02-Nov-2012	4.2 K
<a href="#">jquery-1.6.2.pom.asc</a>	02-Nov-2012	490 B
<a href="#">jquery-1.6.2.pom.asc.md5</a>	02-Nov-2012	32 B
<a href="#">jquery-1.6.2.pom.asc.sha1</a>	02-Nov-2012	40 B
<a href="#">jquery-1.6.2.pom.md5</a>	02-Nov-2012	32 B
<a href="#">jquery-1.6.2.pom.sha1</a>	02-Nov-2012	40 B

# NOT SURE IF WRITTEN



# BY HEINRICH HEINE...

## Name

..

[jquery-1.6.2.jar](#)

[jquery-1.6.2.jar.asc](#)

[jquery-1.6.2.jar.asc.md5](#)

[jquery-1.6.2.jar.asc.sha1](#)

[jquery-1.6.2.jar.md5](#)

[jquery-1.6.2.jar.sha1](#)

[jquery-1.6.2.pom](#)

[jquery-1.6.2.pom.asc](#)

[jquery-1.6.2.pom.asc.md5](#)

[jquery-1.6.2.pom.asc.sha1](#)

[jquery-1.6.2.pom.md5](#)

[jquery-1.6.2.pom.sha1](#)

## Size

100.7 K

490 B

32 B

40 B

32 B

40 B

4.2 K

490 B

32 B

40 B

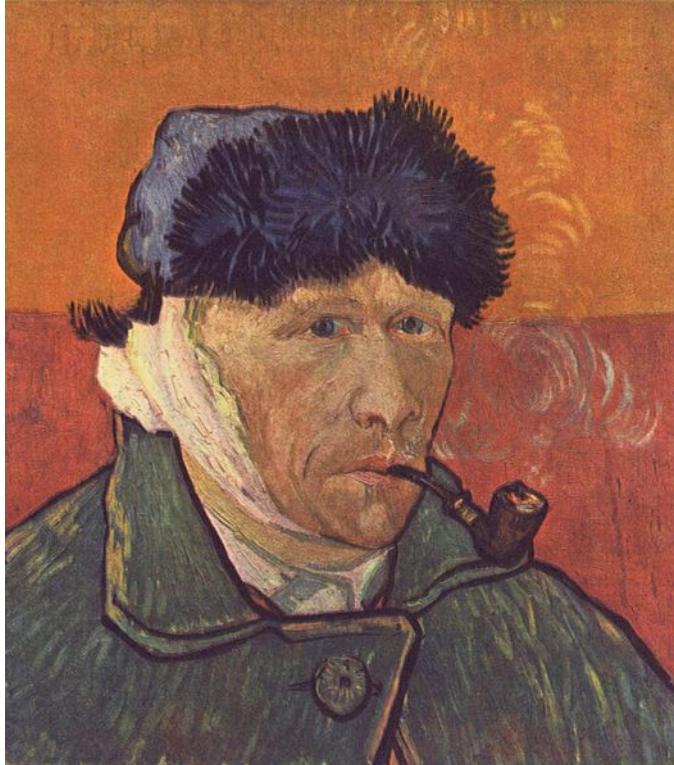
32 B

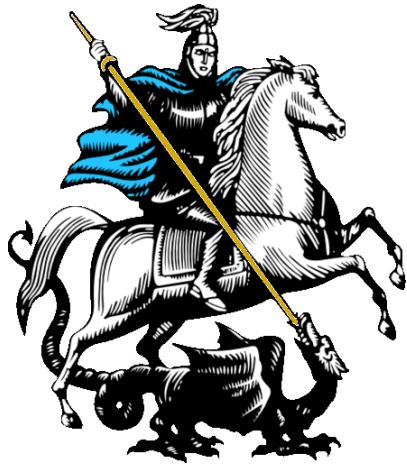
40 B

AA

STORY NUMBER TWO  
(AND A HALF)

He cut his ear off  
and died unappreciated





## Lesson learned

Authenticate by public identity;  
Give credit to the developer



# Identified, credited. Well Done.

The screenshot shows the NuGet Gallery interface for the package 'jQuery 1.9.0'. The page has a blue header with the 'nuget gallery' logo and navigation links for Home, Packages, Upload Package, Documentation, and Blog. A search bar is also present. The main content area displays the package details:

- jQuery 1.9.0**
- Downloads:** 1,480,970
- Downloads of v 1.9.0:** 34,019
- Last update:** 1/15/2013
- Project Site:** (link)
- License:** (link)
- Report Abuse:** (link)
- Contact Owners:** (link)
- How to Download:** (link)

The 'Owners' section is highlighted with a red box and lists two entries:

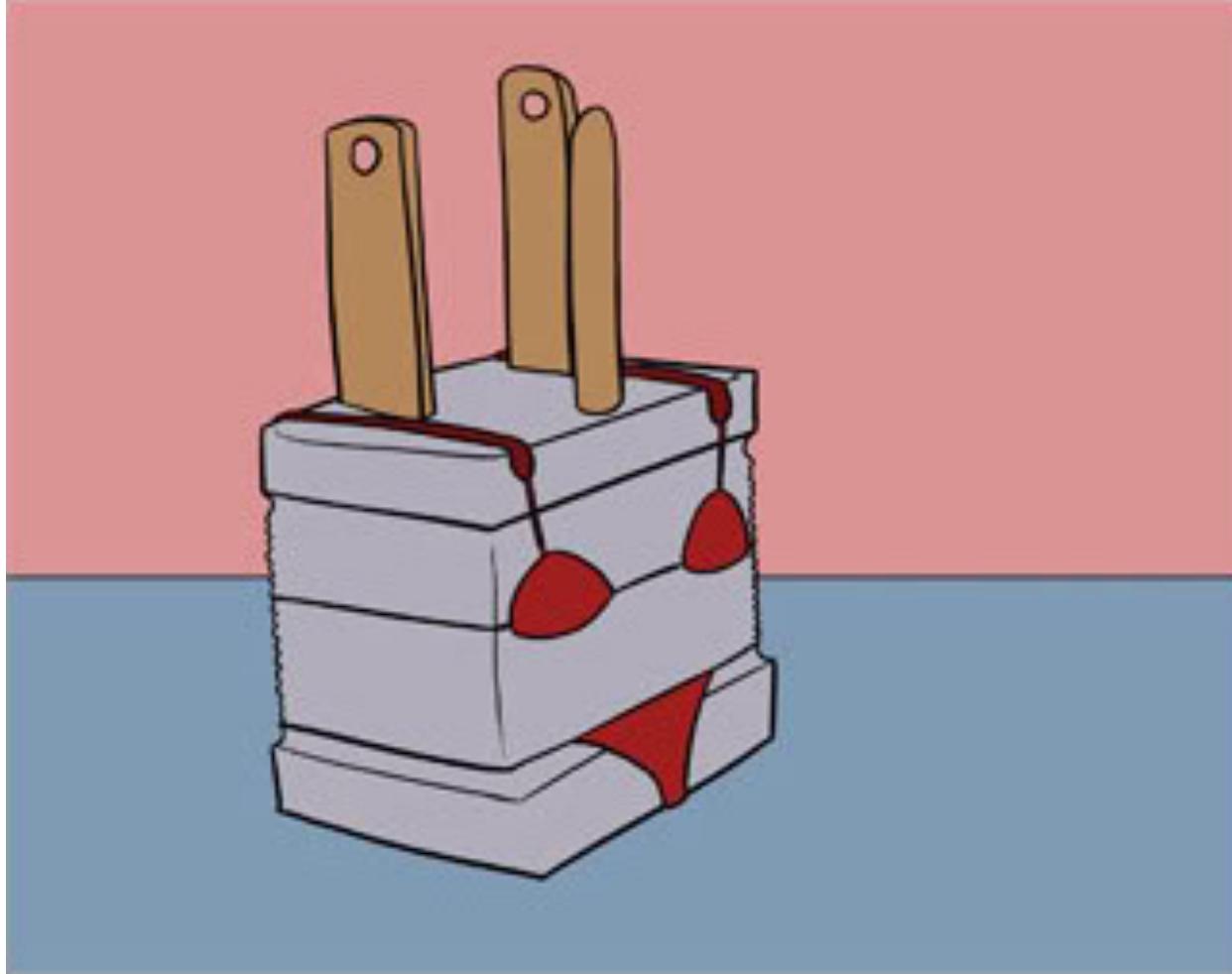
- damianedwards (with a small profile icon)
- outercurve (with a purple and black gear-like profile icon)

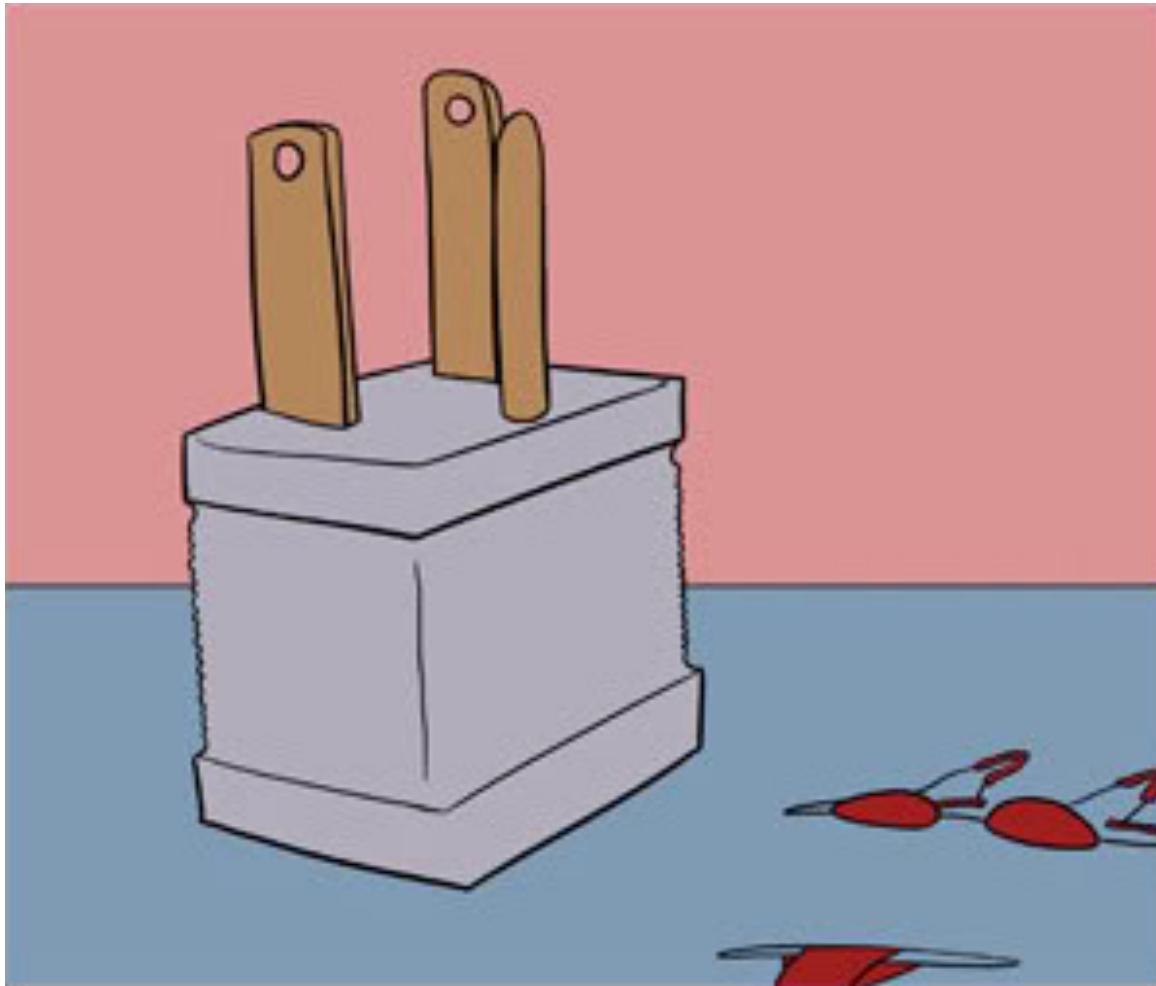
The 'Authors' section lists:

- John Resig

Below the package details, there are social sharing buttons for Twitter and Facebook, and a note that one person likes the package.

```
PM> Install-Package jquery
```





Owned by [Mitchell Hash...](#)

(14)

Contact

Link

Report



Vagrant provides easy to configure, reproducible, and portable work environments built on top of industry-standard technology and controlled by a single consistent workflow to help maximize the productivity and flexibility of you and your team. To achieve its magic, Vagrant stands on the shoulders of giants. Machines are provisioned on top of VirtualBox, VMware, AWS, or any other provider. Then, industry-standard provisioning tools such as shell scripts, Chef, or Puppet, can be used to automatically install and configure software on the machine.

SET ME UP!

**General**[Readme](#)[Release Notes](#)[Reviews \(0\)](#)[Statistics](#)[Files](#)About This Package[Version Notification Links](#)

Website

<http://www.vagrantup.com>

Issue Tracker

None

VCS

None

Licenses

[MIT](#) Downloads (ver: 1.7.4)

No direct downloads selected for this package.

Versions[Latest Version Badge](#) [1.7.4](#)[1.7.3](#)[1.7.2](#)[1.7.1](#)[1.7.0](#)[View All](#)[Watchers \(40\)](#)[Watch View All](#)



He wrote it!

mitchellh / vagrant / vagrant



<https://dl.bintray.com/mitchellh/v...>

Owned by Mitchell Hash...

★★★★★ (14)

Contact



Link

Report



Vagrant provides easy to configure, reproducible, and portable work environments built on top of industry-standard technology and controlled by a single consistent workflow to help maximize the productivity and flexibility of you and your team. To achieve its magic, Vagrant stands on the shoulders of giants. Machines are provisioned on top of VirtualBox, VMware, AWS, or any other provider. Then, industry-standard provisioning tools such as shell scripts, Chef, or Puppet, can be used to automatically install and configure software on the machine.

SET ME UP!

Thank him here!

General

Readme

Release Notes

Reviews (0)

Statistics

Files

#### About This Package

Version Notification Links

Website

<http://www.vagrantup.com>

Issue Tracker

None

VCS

None

Licenses

MIT

#### Downloads (ver: 1.7.4)



No direct downloads selected for this package.

#### Versions

Latest Version Badge

1.7.4



1.7.3

1.7.2

1.7.1

1.7.0

[View All](#)

Watchers (40)

Watch [View All](#)





mitchellh / vagrant / vagrant

<https://dl.bintray.com/mitchellh/v...>

Owned by Mitchell Hash...

★★★★★ (14)

Contact

Link

Report



Vagrant provides easy to configure, reproducible, and portable work environments built on top of industry-standard technology and controlled by a single consistent workflow to help maximize the productivity and flexibility of you and your team. To achieve its magic, Vagrant stands on the shoulders of giants. Machines are provisioned on top of VirtualBox, VMware, AWS, or any other provider. Then, industry-standard provisioning tools such as shell scripts, Chef, or Puppet, can be used to automatically install and configure software on the machine.

SET ME UP!

[General](#)[Readme](#)[Release Notes](#)[Reviews \(0\)](#)[Statistics](#)[Files](#)About This Package[Version Notification Links](#)

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Versions[Latest Version Badge](#)

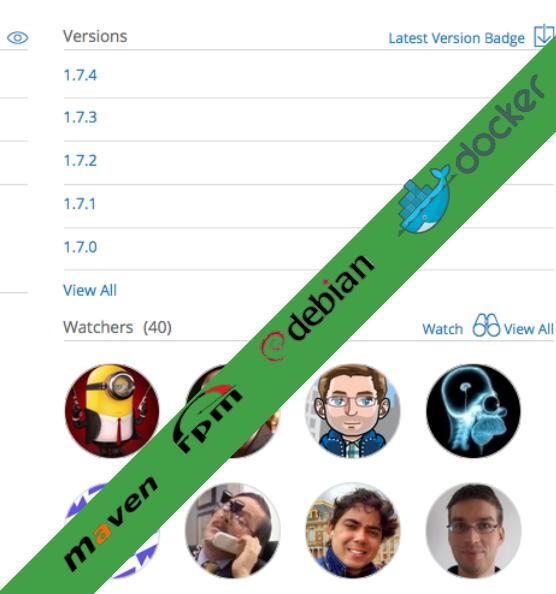
1.7.4

1.7.3

1.7.2

1.7.1

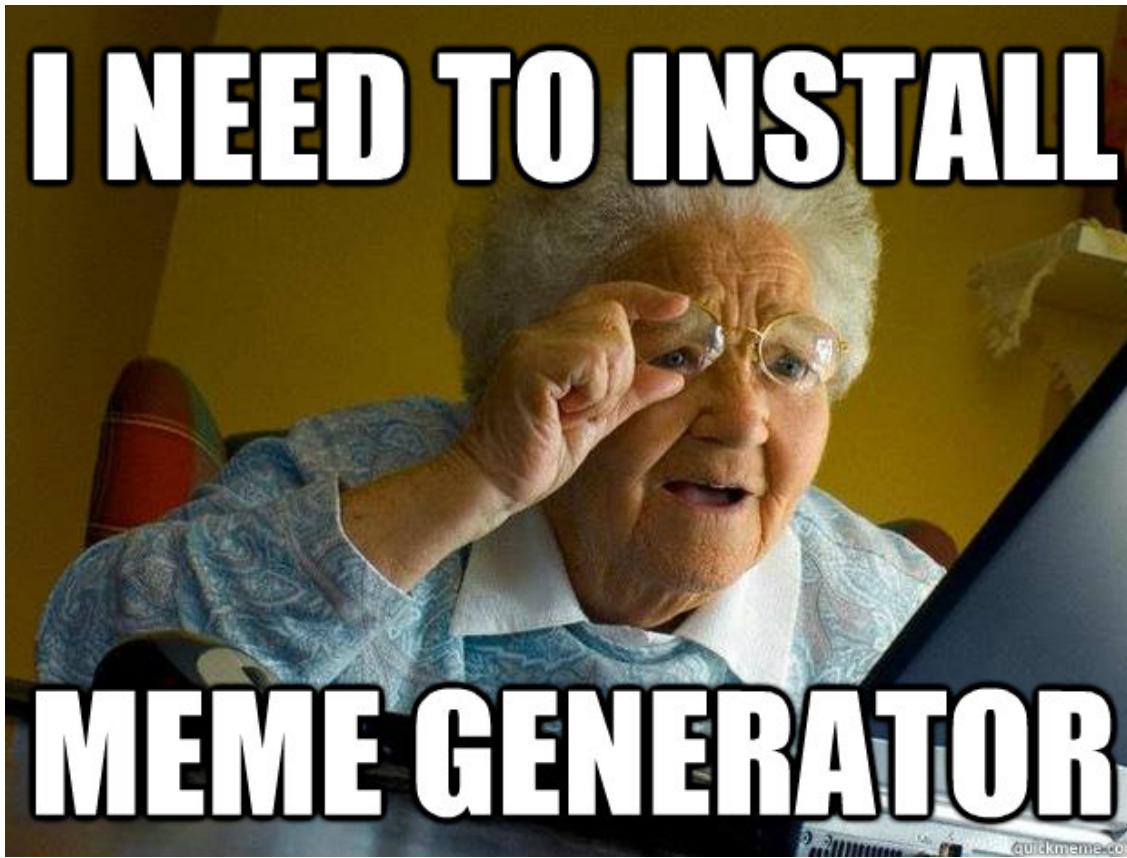
1.7.0

[View All](#)[Watchers \(40\)](#)[Watch](#) [View All](#)

C

STORY NUMBER THREE

Imagine a typical windows user



Setup - iMeme

**Select Destination Location**

Where should iMeme be installed?



Setup will install iMeme into the following folder.

C:\Program Files (x86)\iMeme

[Browse...](#)

**No version**

At least 20.2 MB of free disk space is required.

< Back

Next >

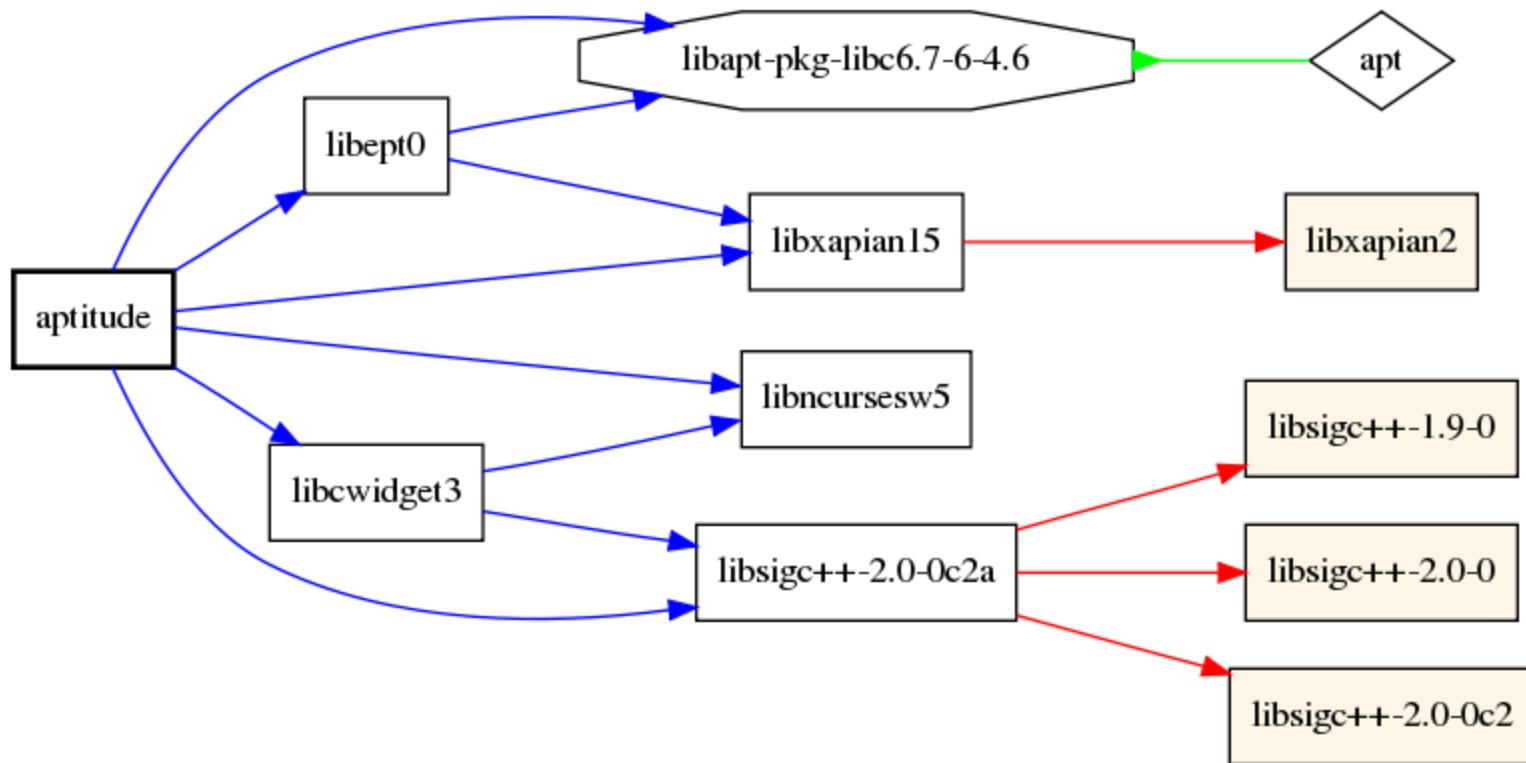
Cancel

**IF THE VERSION  
IS NOT LISTED...**



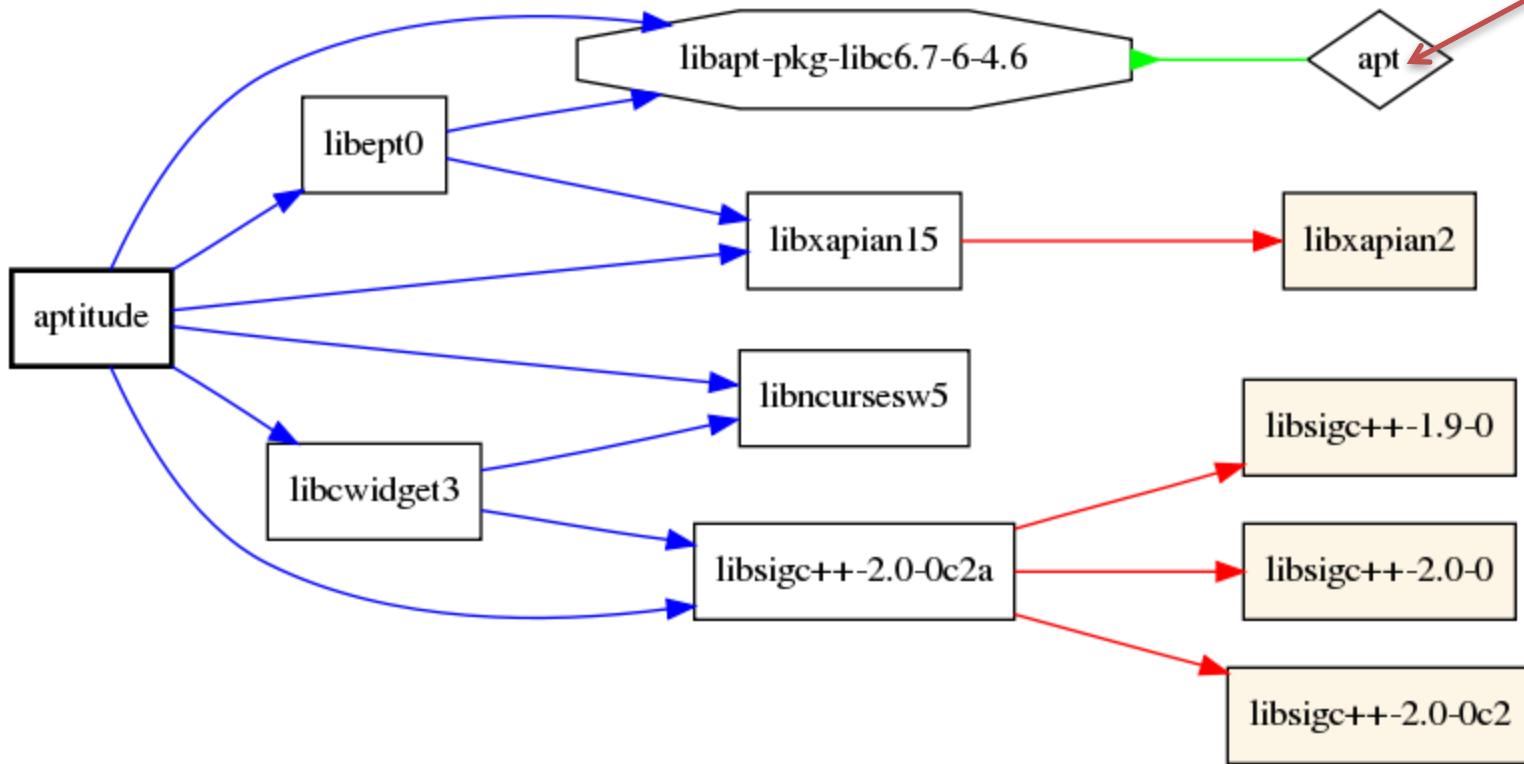
**HOW OTHERS CAN  
DEPEND ON IT?**

# Depending on name only



# Depending on name only

Where's the version, dude?!



**BRACE YOURSELVES,**

You knew it is coming!

**TIME FOR THE  
BOROMIR MEME!**



**I AM COMING**



**ONE DOES NOT SIMPLY**

**INSTALL MULTIPLE VERSIONS OF...**



stack**overflow**

Questions

Tags

Users

Badges

## two versions of ruby installed, how to fix that?

I found out that I have two versions of ruby installed on OSX 10.6.2 how can I un



stack**overflow**

Questions

Tags

Users

Badges

## two versions of ruby installed, how to fix that?

I found out that I have two versions of ruby installed on OSX 10.6.2 how can I un

# Ruby Version Manager: Easily Use Multiple Ruby Versions At Once

By **Peter Cooper** / August 26, 2009



*Ruby Version Manager* ([GitHub repo](#)) (a.k.a. RVM) makes it ridiculously easy to install and switch between multiple Ruby versions on OS X and Linux. Over the last 24 hours, I've been playing with RVM and talking to creator Wayne E. Seguin and have been blown away with how cool (and simple) it is - you will definitely want to check this one out.

# Single Namespace Troubles

Scope	Trouble	Examples	Work-around

# Single Namespace Troubles

Scope	Trouble	Examples	Work-around
System	Can't use multiple versions, update all		

# Single Namespace Troubles

Scope	Trouble	Examples	Work-around
System	Can't use multiple versions, update all	RPMs, Ruby, Groovy	

# Single Namespace Troubles

Scope	Trouble	Examples	Work-around
System	Can't use multiple versions, update all	RPMs, Ruby, Groovy	RVM, GVM, Homebrew

# Single Namespace Troubles

Scope	Trouble	Examples	Work-around
System	Can't use multiple versions, update all	RPMs, Ruby, Groovy	RVM, GVM, Homebrew
Platform	Classpath/ DLL hell		

# Single Namespace Troubles

Scope	Trouble	Examples	Work-around
System	Can't use multiple versions, update all	RPMs, Ruby, Groovy	RVM, GVM, Homebrew
Platform	Classpath/ DLL hell	Transitive dependency conflicts	

# Single Namespace Troubles

Scope	Trouble	Examples	Work-around
System	Can't use multiple versions, update all	RPMs, Ruby, Groovy	RVM, GVM, Homebrew
Platform	Classpath/ DLL hell	Transitive dependency conflicts	Uberjar /Static compilation

# Interlude...

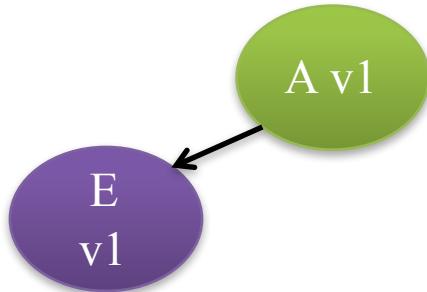


# Maven's Conflict Manager

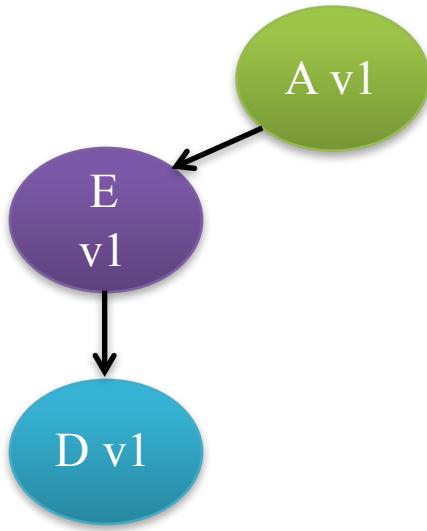


A v1

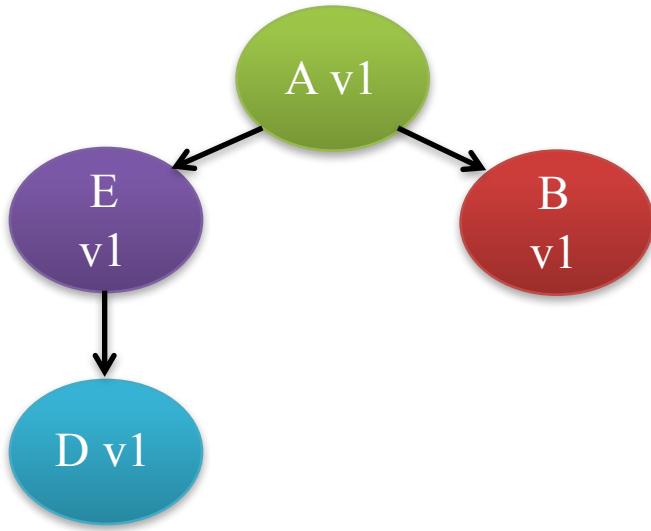
# Maven's Conflict Manager



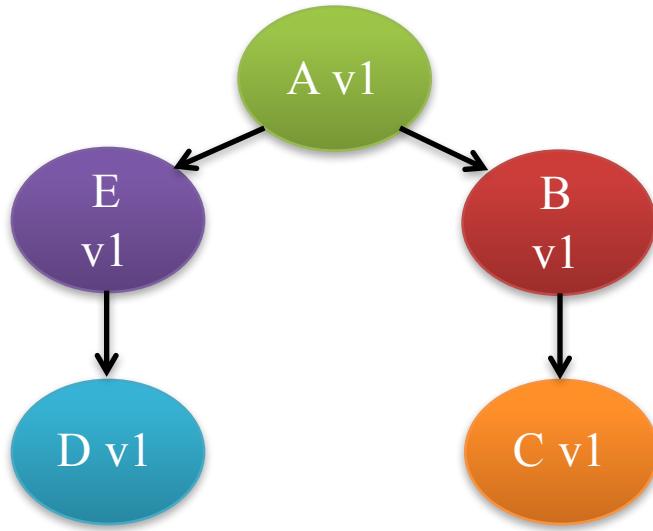
# Maven's Conflict Manager



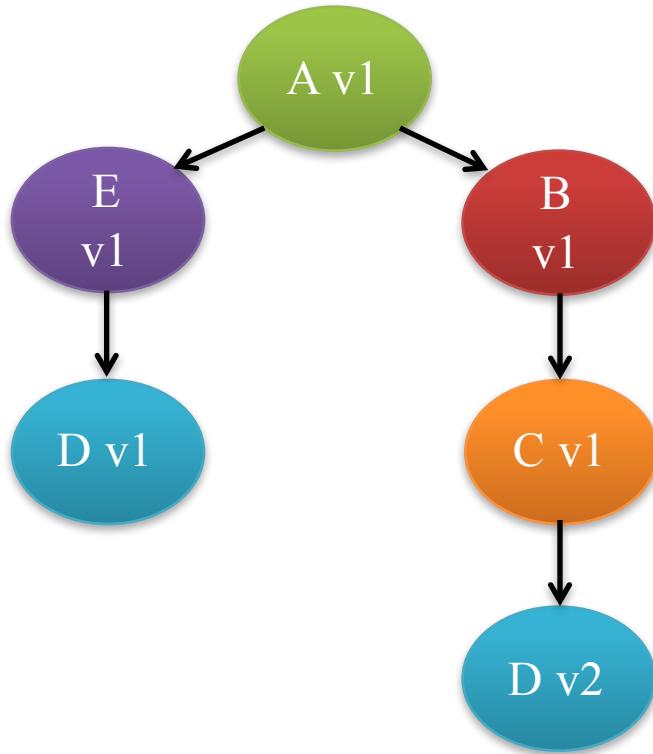
# Maven's Conflict Manager



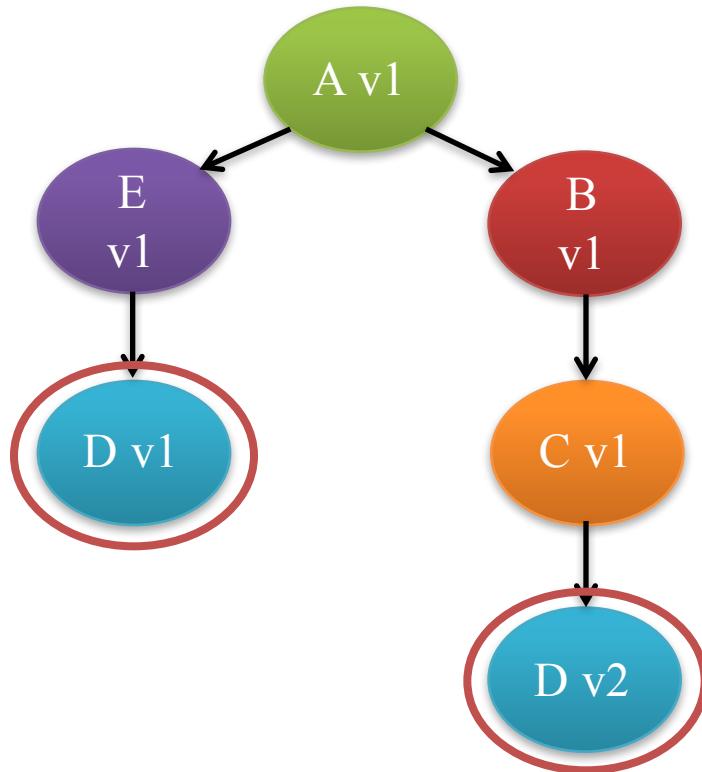
# Maven's Conflict Manager



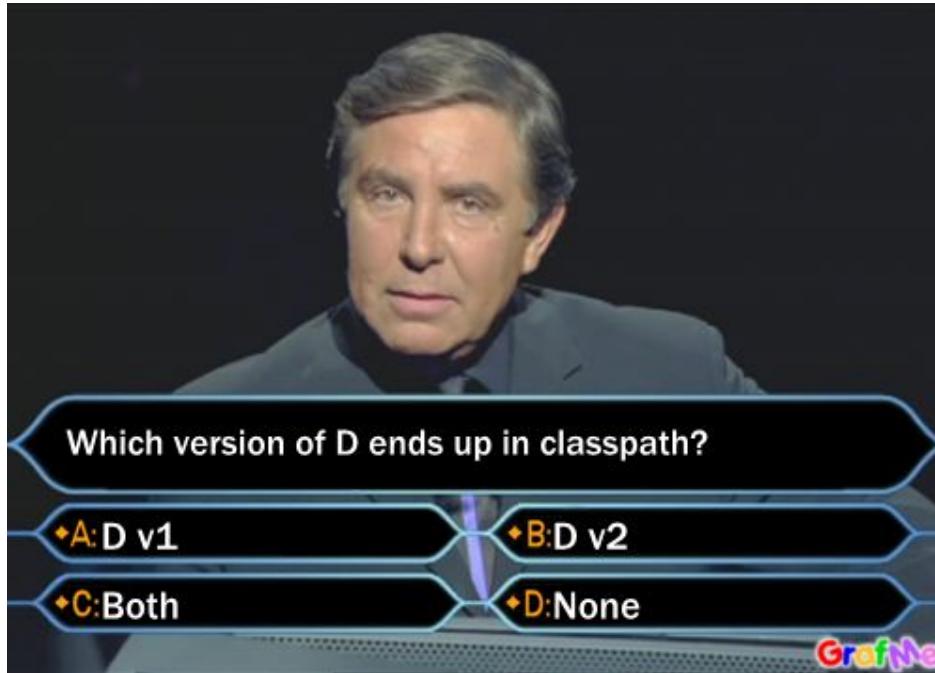
# Maven's Conflict Manager



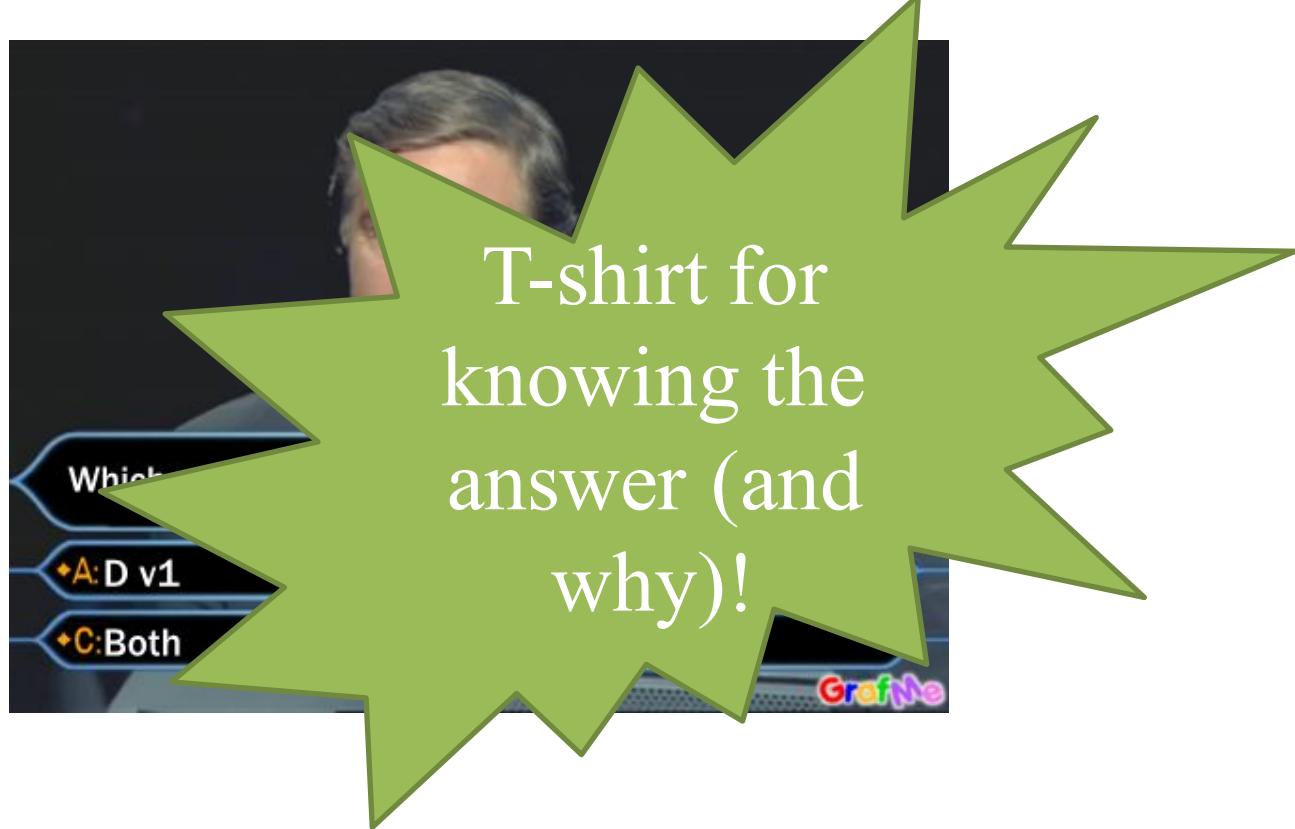
# Maven's Conflict Manager



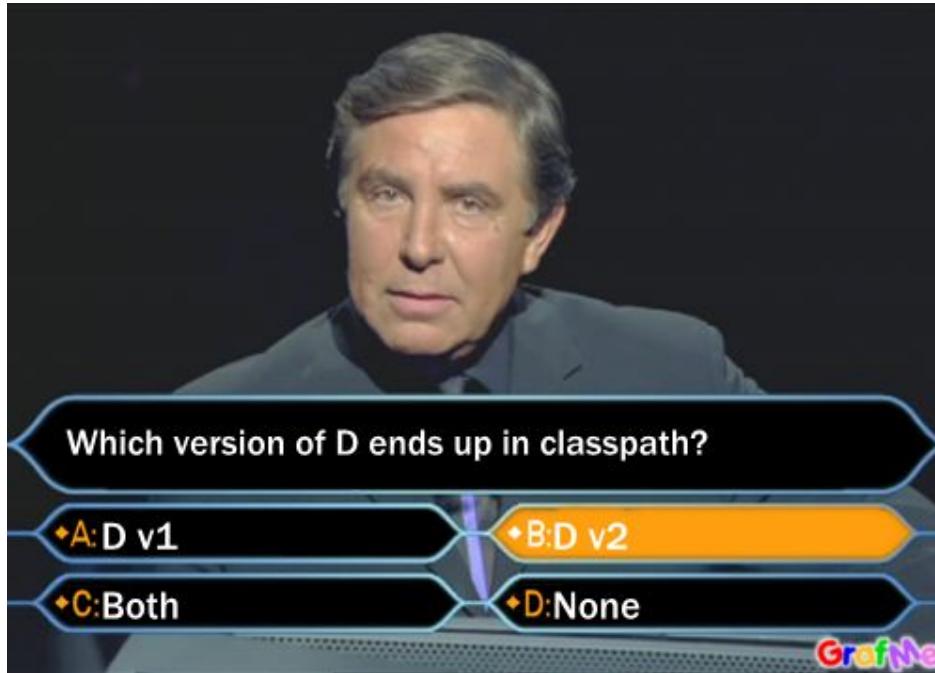
# Maven's Conflict Manager



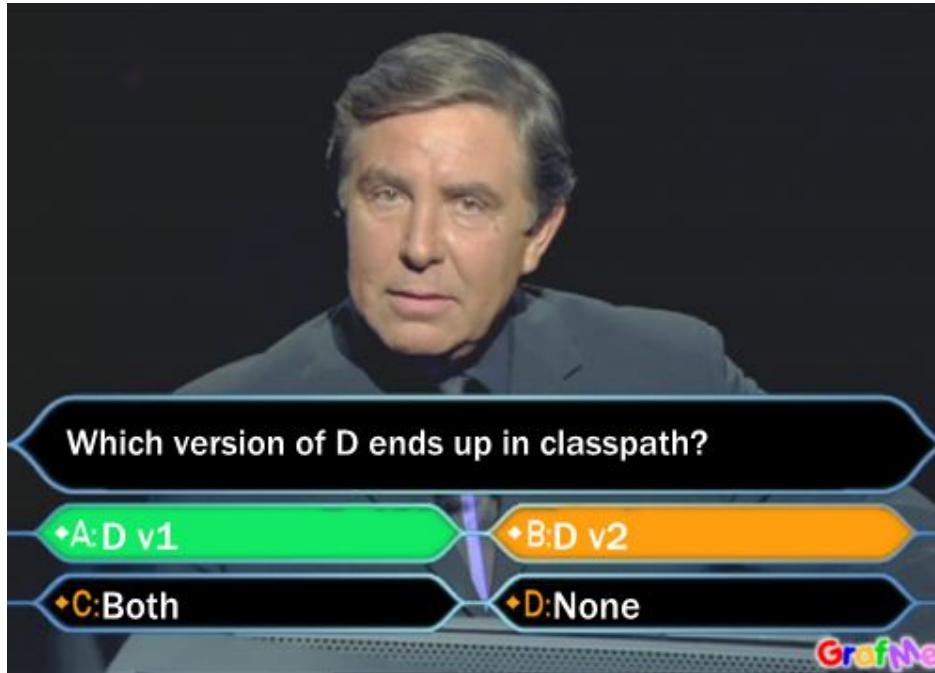
# Maven's Conflict Manager



# Maven's Conflict Manager



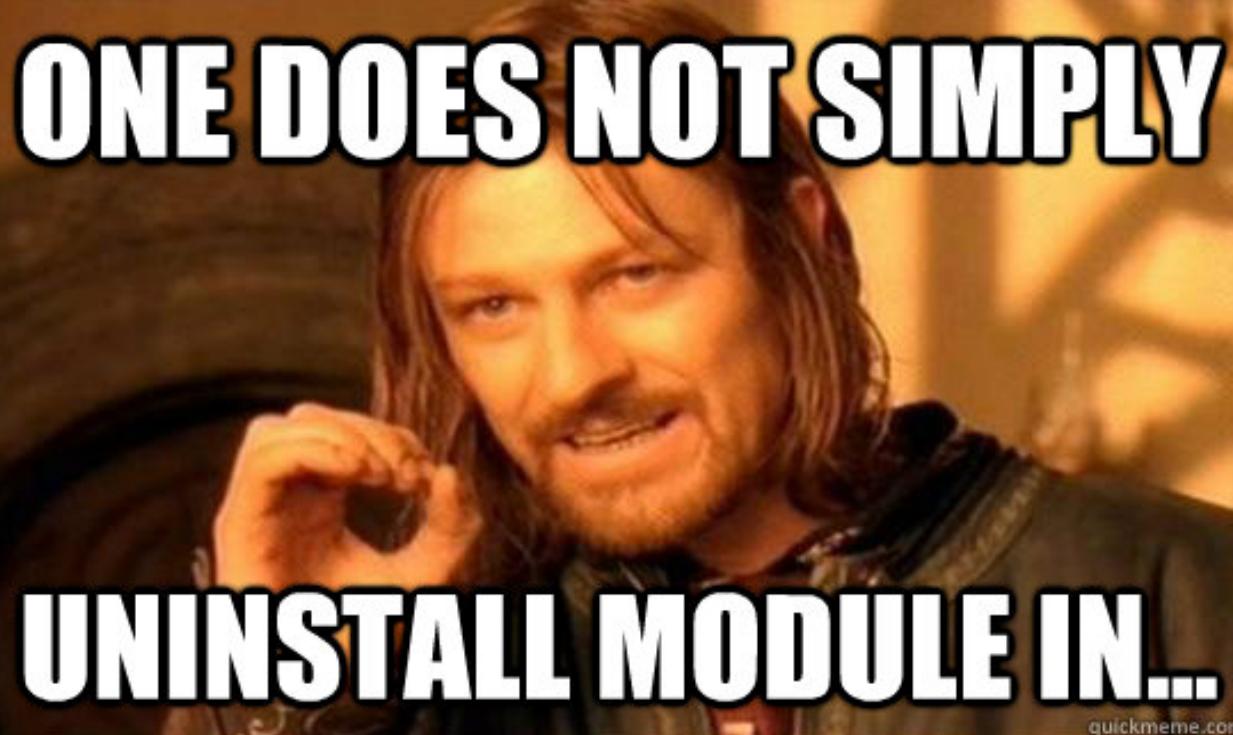
# Maven's Conflict Manager





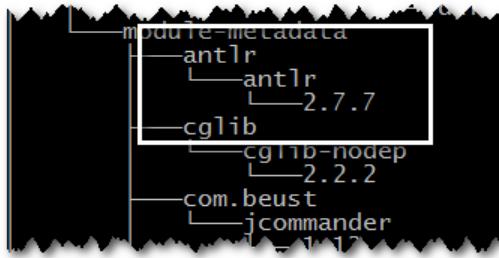
Reprise...

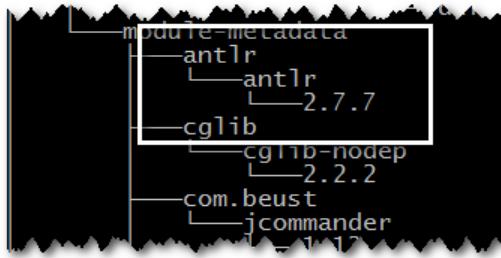
# **BOROMIR RETURNS!**

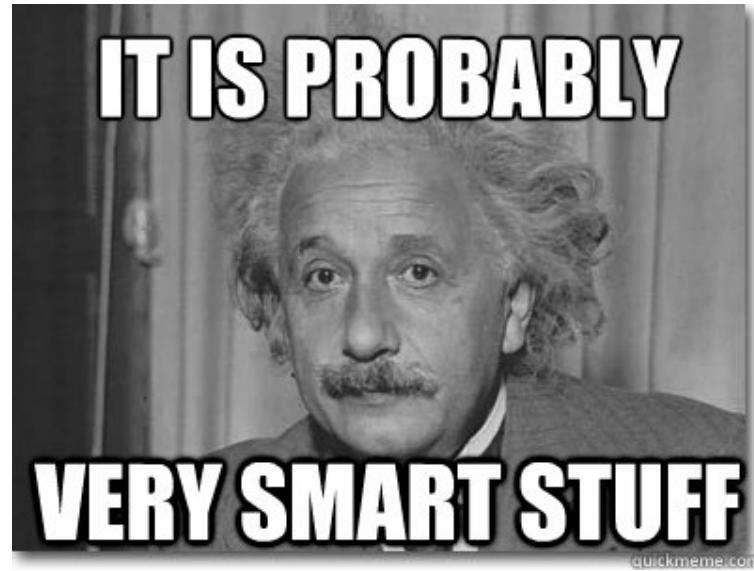


**ONE DOES NOT SIMPLY  
UNINSTALL MODULE IN...**

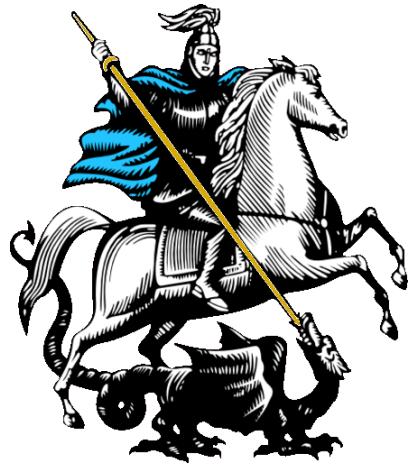








Just not very usable...



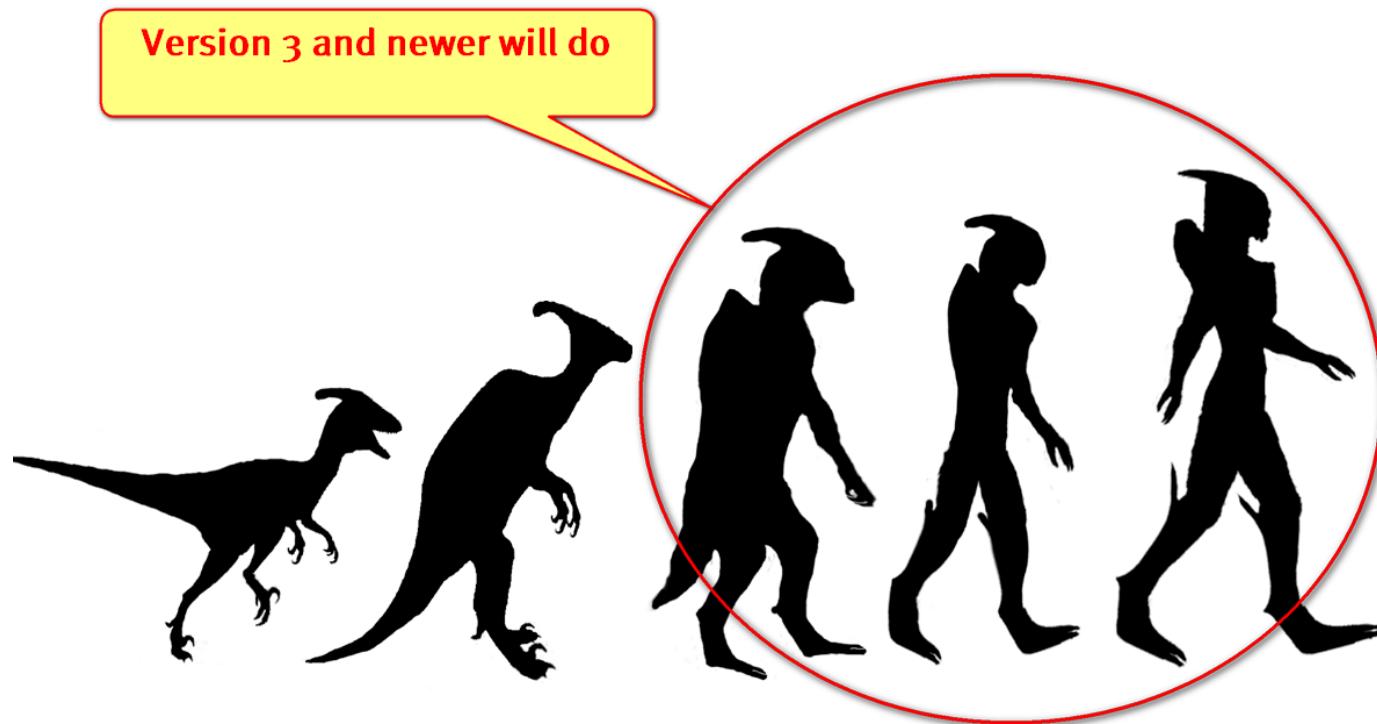
## Lesson learned

Provide isolation  
and cache manager

g

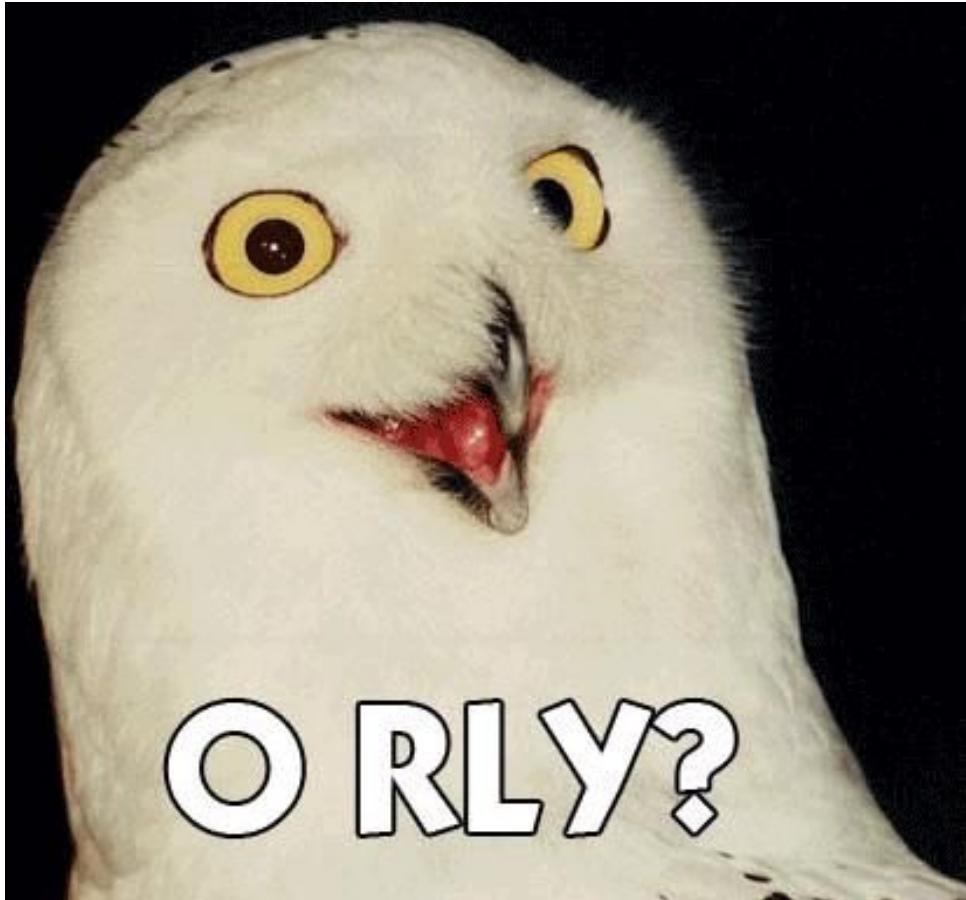
STORY NUMBER FOUR

# Version ranges



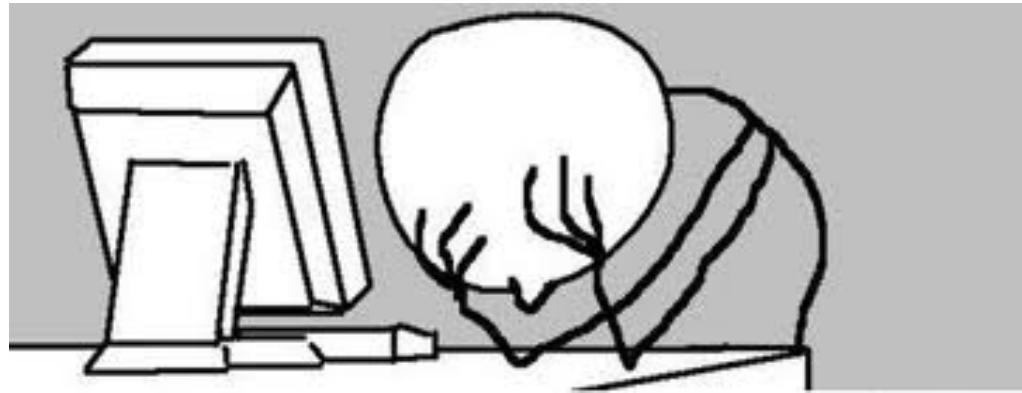
**LET'S ASSUME  
EVERYTHING**

**IS BACKWARDS  
COMPATIBLE**



ORLY?

# Stuff Suddenly stops working



Competition for the fragilest  
dependency management ever!



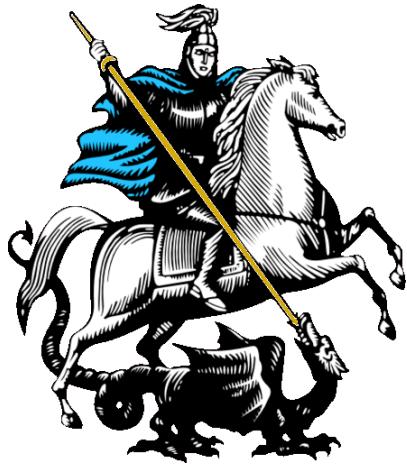
# And the winner is...

```
1 FROM ubuntu ← Latest version → Latest version  
2  
3 RUN apt-get install -y python-software-properties python  
4 RUN apt-get install -y nodejs  
5 RUN mkdir /var/www ← Latest version  
6  
7 ADD app.js /var/www/app.js ← Latest version  
8  
9 CMD ["/usr/bin/node", "/var/www/app.js"]
```

# Whole new meaning to “The Fail Whale”



\*we know it's a seal, but whale would do a facepalm too if his fins were long enough



# Lesson learned

Require explicit  
dependency versions

D

STORY NUMBER FIVE

Like  
vodka  
and  
beer...



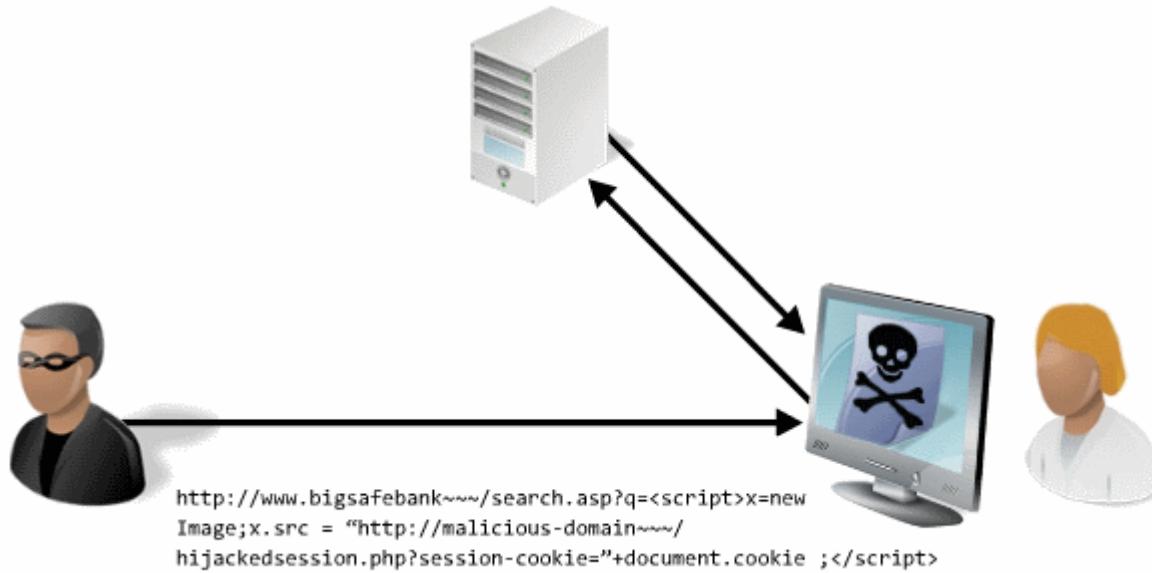
...Config.  
and  
Metadata



...Just  
won't  
mix.



# a.k.a dependency management xss



The Spring Framework — Read more  
<http://springsource.org/spring-framework>

Clone in Windows ZIP HTTP SSH Git Read-Only https://github.com/SpringSource/spring-framework.git

Read-Only access

branch 3.2.x Files Commits Branches Tags 32

spring-framework / 1000+ commits

MediaType throws dedicated InvalidMediaTypeException instead of generic... [jhoeller]

jhoeller authored a day ago latest commit 58f59d6851

.settings 6 months ago Remove spring-asm and inline ASM 4 into spring-core [cbeams]

buildSrc 6 days ago Restore compile dependencies in generated POMs [philwebb]

gradle 3 days ago Sort maven dependencies in generated pom files [rwinch]

spring-aop 21 days ago AbstractAdvisingBeanPostProcessor caches per bean target class, worki... [jhoeller]

spring-webmvc 9 days ago Raise exception on missing request parameters [rstoyanchev]

src 5 days ago Fix typo in new-in-3.2.xml document [Ken Dombeck]

.gitignore 20 days ago Exclude eclipse WTP generated artifacts [philwebb]

CONTRIBUTING.md 2 days ago Update example years to 2013 in CONTRIBUTING.md [philwebb]

README.md 3 months ago Update README to reflect JDK 1.7 build prereq [cbeams]

build.gradle 6 days ago Restore compile dependencies in generated POMs [philwebb]

gradle.properties 7 days ago Increment version to 3.2.2.BUILD-SNAPSHOT [spring-buildmaster]

**Configuration is sources**

- ▶ 4.0.9.RELEASE
- ▶ 4.1.0.RELEASE
- ▶ 4.1.1.RELEASE
- ▶ 4.1.2.RELEASE
- ▶ 4.1.3.RELEASE
- ▶ 4.1.4.RELEASE
- ▶ 4.1.5.RELEASE
- ▶ 4.1.6.RELEASE
- ▶ 4.1.7.RELEASE
- ▶ 4.1.8.RELEASE
- ▶ 4.2.0.RELEASE
- ▶ 4.2.1.RELEASE
- ▼ 4.2.2.RELEASE
  - ▶ spring-core-4.2.2.RELEASE-javadoc.jar
  - 📄 spring-core-4.2.2.RELEASE-javadoc.jar.asc
  - ▶ spring-core-4.2.2.RELEASE-sources.jar
  - 📄 spring-core-4.2.2.RELEASE-sources.jar.asc
  - ▶ **spring-core-4.2.2.RELEASE.jar**
  - 📄 **spring-core-4.2.2.RELEASE.jar.asc**
  - m spring-core-4.2.2.RELEASE.pom**
  - 📄 **spring-core-4.2.2.RELEASE.pom.asc**
  - 📄 maven-metadata.xml
  - 📄 maven-metadata.xml.asc
- ▶ spring-expression
- ▶ spring-framework-bom
- ▶ spring-instrument
- ▶ spring-instrument-tomcat
- ▶ spring-jdbc
- ▶ spring-imc

**m spring-core-4.2.2.RELEASE.pom**

General

Pom View

Properties

Builds

Governance

Download View

## POM Content

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <project xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd" xmlns="http://maven.apache.org/POM/4.0.0"
3   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
4   <modelVersion>4.0.0</modelVersion>
5   <groupId>org.springframework</groupId>
6   <artifactId>spring-core</artifactId>
7   <version>4.2.2.RELEASE</version>
8   <name>Spring Core</name>
9   <description>Spring Core</description>
10  <url>https://github.com/spring-projects/spring-framework</url>
11  <organization>
12    <name>Spring IO</name>
13    <url>http://projects.spring.io/spring-framework</url>
14  </organization>
15  <licenses>
16    <license>
17      <name>The Apache Software License, Version 2.0</name>
18      <url>http://www.apache.org/licenses/LICENSE-2.0.txt</url>
19      <distribution>repo</distribution>
20    </license>
21  </licenses>
22  <developers>
23    <developer>
24      <id>jhoeller</id>
```

Metadata are artifacts

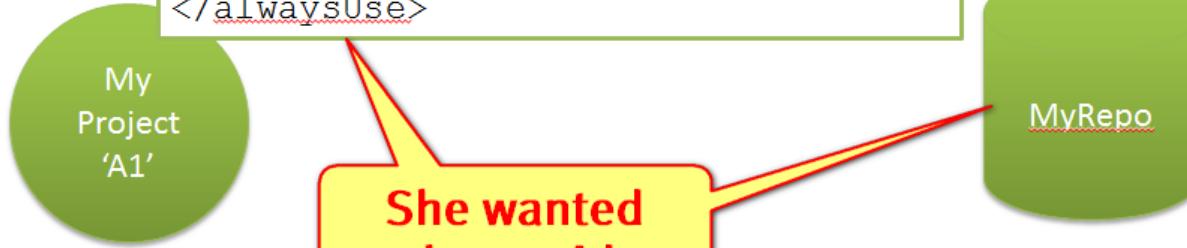
So, a user had a project...



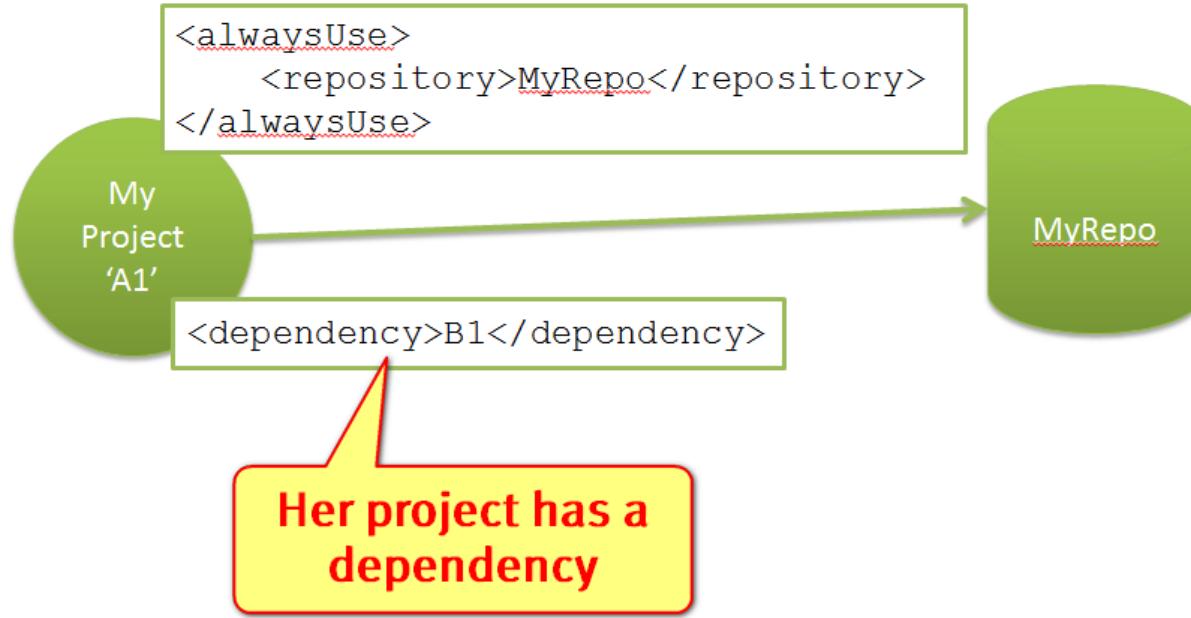


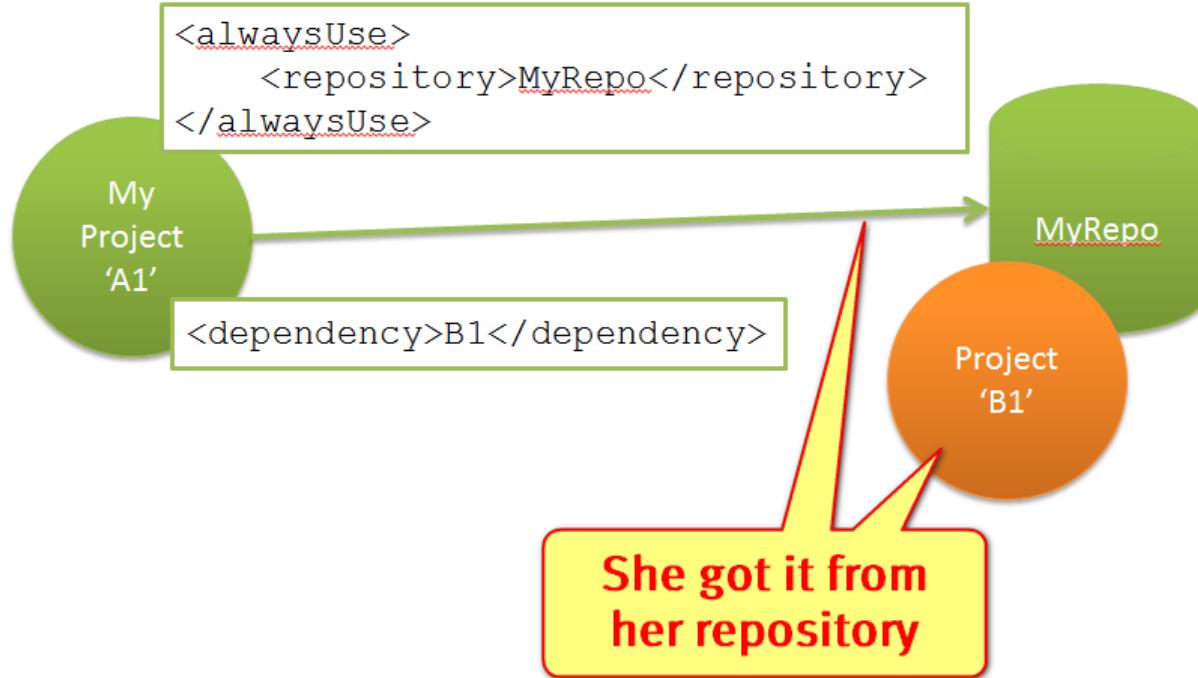
User had a  
project

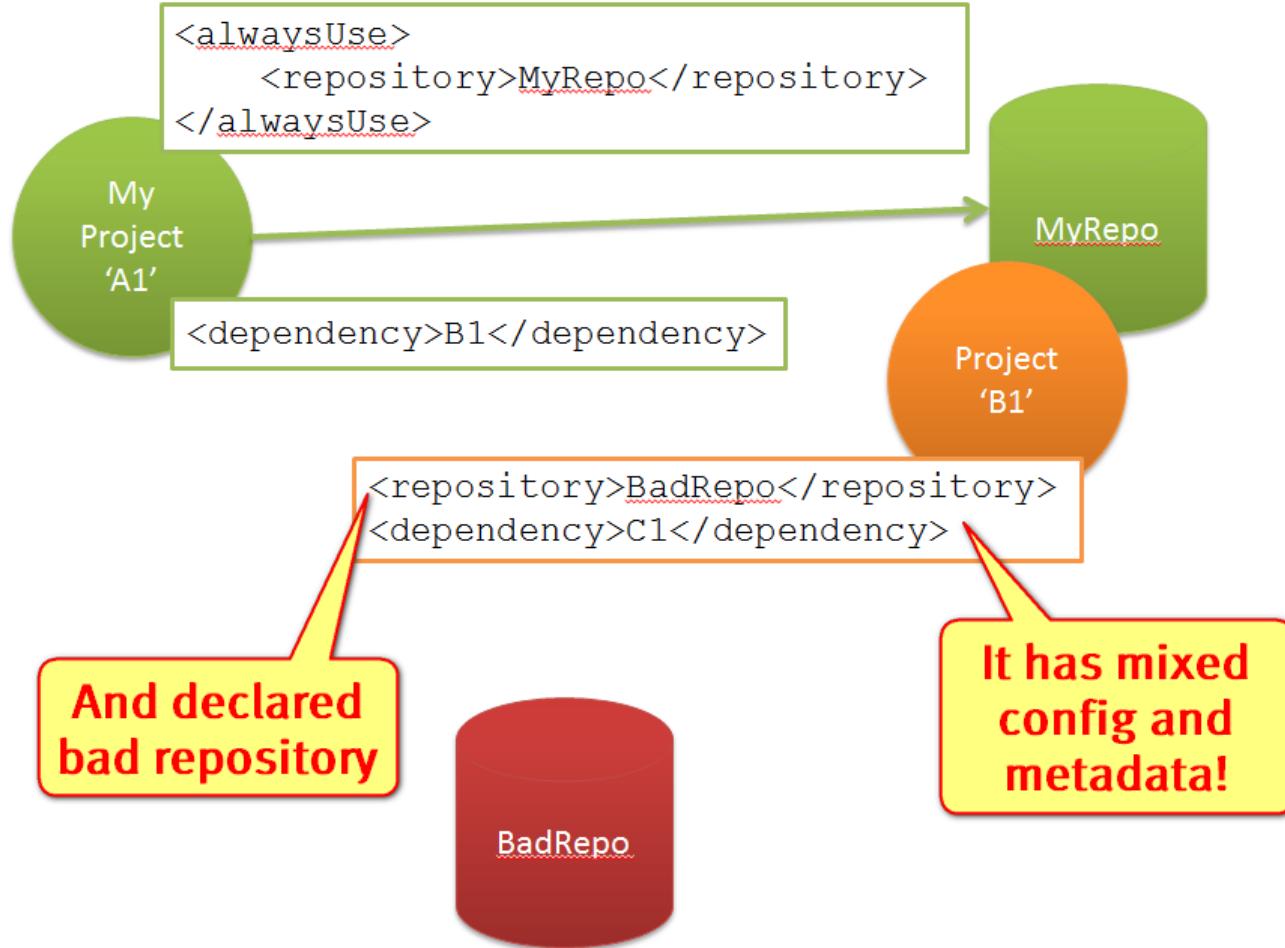
```
<alwaysUse>  
  <repository>MyRepo</repository>  
</alwaysUse>
```

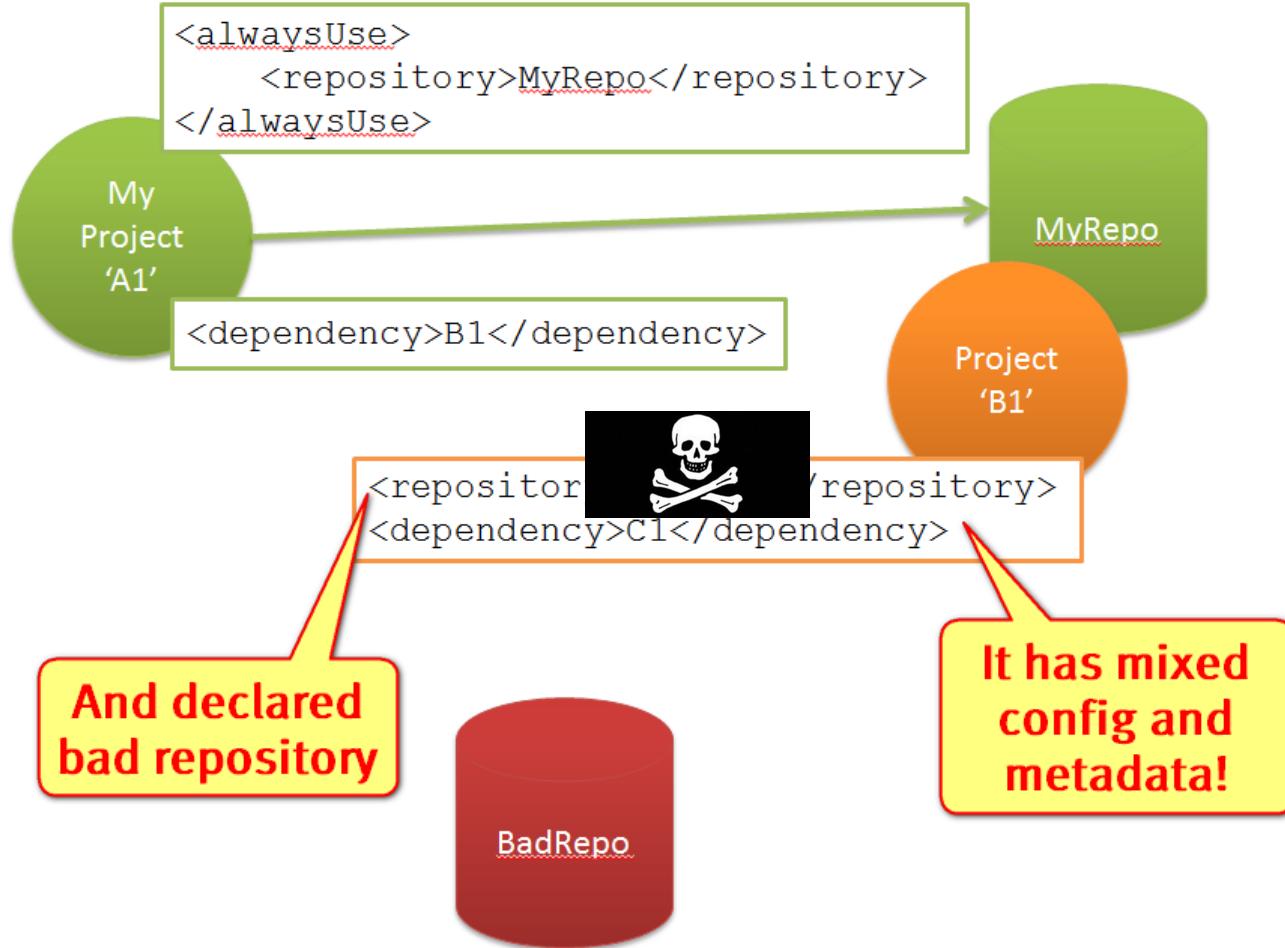


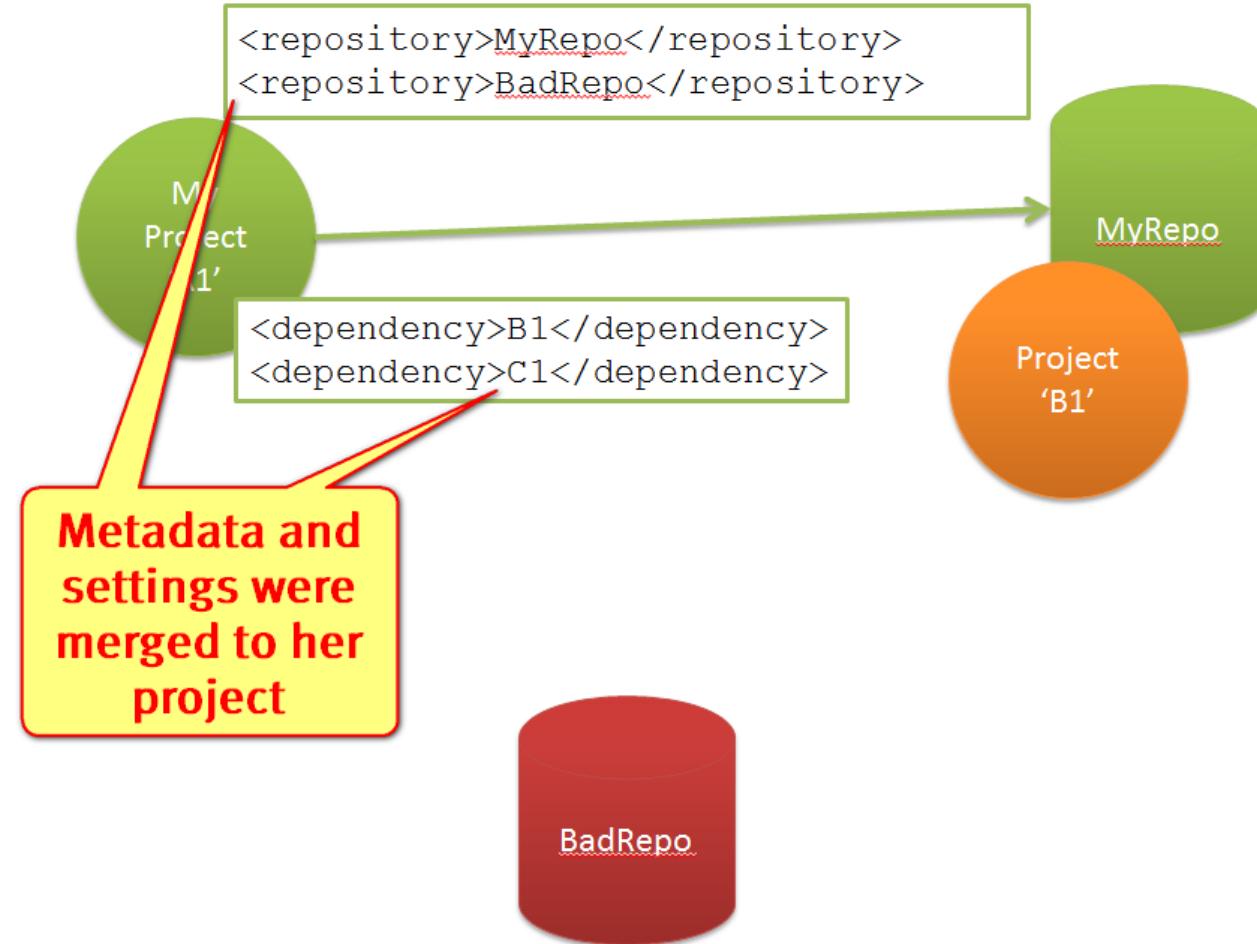
**She wanted  
sole provider**

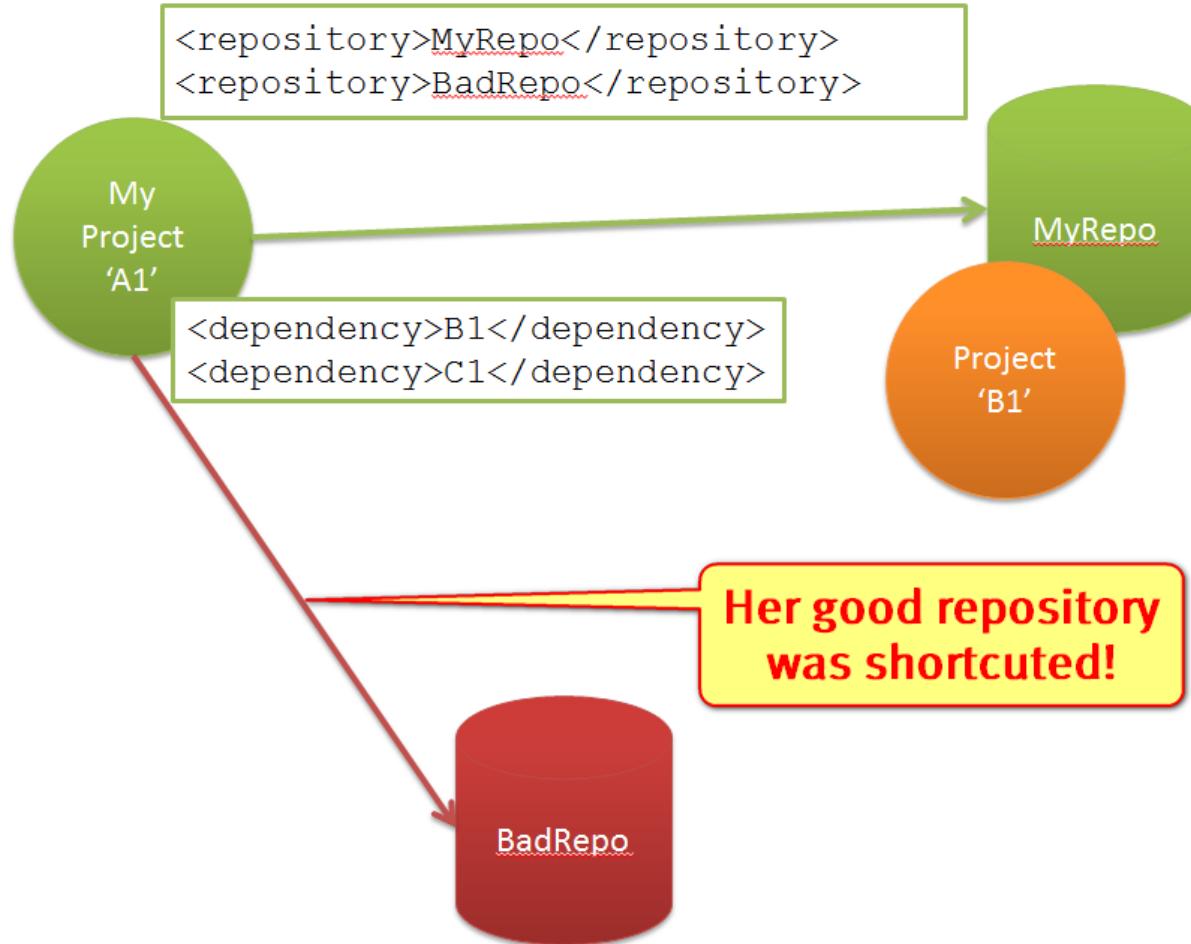
















**BY NOW YOU MIGHT THINK WE  
HAVE A MAVEN BIAS. HERE YOU  
GO:**

So, a user wanted to  
install npm package...



```
$npm cache clean  
  
$npm config set registry \  
http://192.168.99.100:8081/artifactory/api/npm/npm-registry  
  
$npm -d install intern@1.3
```

```
http fetch GET http://192.168.99.100:8081/artifactory/api/npm/npm-registry/chai/-/chai-1.5.0.tgz
http fetch 200 http://192.168.99.100:8081/artifactory/api/npm/npm-registry/chai/-/chai-1.5.0.tgz
http fetch 200 https://github.com/csnover/dojo2-core/archive/3e4152d20e.tar.gz
http 200 http://192.168.99.100:8081/artifactory/api/npm/npm-registry/istanbul
```

```
http fetch GET http://192.168.99.100:8081/artifactory/api/npm/npm-registry/chai/-/chai-1.5.0.tgz
http fetch 200 http://192.168.99.100:8081/artifactory/api/npm/npm-registry/chai/-/chai-1.5.0.tgz
http fetch 200 https://github.com/csnover/dojo2-core/archive/3e4152d20e.tar.gz
http 200 http://192.168.99.100:8081/artifactory/api/npm/npm-registry/istanbul
```



```
{  
  "name": "intern",  
  "version": "1.3.2",  
  "main": "main",  
  "description": "Intern. A next-generation code testing stack for JavaScript.",  
  "repository": {  
    "type": "git",  
    "url": "https://github.com/theintern/intern.git"  
  },  
  "licenses": [  
    { "type": "BSD-3-Clause", "url": "https://github.com/theintern/intern/blob/master/LICENSE" }  
  ],  
  "dependencies": {  
    "wd": "0.2.2",  
    "istanbul": "0.1.35",  
    "sauce-connect-launcher": "0.1.11",  
    "dojo": "https://github.com/csnover/dojo2-core/archive/3e4152d20e.tar.gz",  
    "chai": "1.5.0"  
  },  
  "devDependencies": {  
    "intern": "1.3.2"  
  },
```





## Lesson learned

Don't mix ~~vodka and beer~~  
configuration and metadata

a

STORY NUMBER SIX

# Trumped-up limitations



# The Anatomy of Docker Tag



[Products](#)    [Customers](#)    [Community](#)    [Partners](#)

## tag

Usage: docker tag [OPTIONS] IMAGE[:TAG] [REGISTRYHOST/][:PORT][/][USERNAME/]NAME[:TAG]

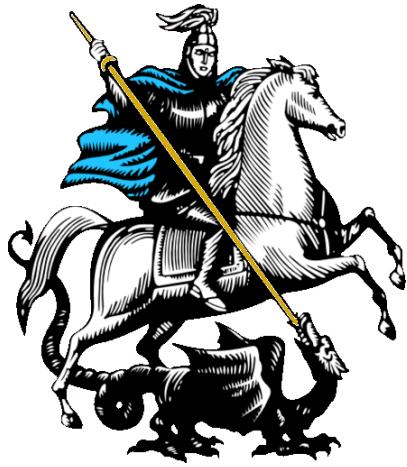
Tag an image into a repository

Wait a second, how can I  
have more than one  
repository per host now?!





“ONE REGISTRY PER HOST OUGHT  
TO BE ENOUGH FOR ANYBODY.”



## Lesson learned

Don't impose unnecessary limitations  
(specially in areas  
outside of core competency)

C

STORY NUMBER SEVEN



# THE WRONG MEMENTO

```
  "name": "indigit-poc",
    "version": "0.0.1",
    "url": "git://github.com/indigit/poc.git",
    "type": "component"
  },
  {
    "name": "indigit-privacy",
    "version": "0.0.1",
    "url": "git://github.com/indigit/privacy.git",
    "type": "component"
  },
  {
    "name": "indigit-legal",
    "version": "0.0.1",
    "url": "git://github.com/indigit/legal.git",
    "type": "component"
  },
  {
    "name": "indigit-payment",
    "version": "0.0.1",
    "url": "git://github.com/indigit/payment.git",
    "type": "component"
  },
  {
    "name": "indigit-profile",
    "version": "0.0.1",
    "url": "git://github.com/indigit/profile.git",
    "type": "component"
  },
  {
    "name": "indigit-exchange",
    "version": "0.0.1",
    "url": "git://github.com/indigit/exchange.git",
    "type": "component"
  },
  {
    "name": "indigit-stile",
    "version": "0.0.1",
    "url": "git://github.com/indigit/stile.git",
    "type": "component"
  },
  {
    "name": "indigit-validation",
    "version": "0.0.1",
    "url": "git://github.com/indigit/validation.git",
    "type": "component"
  },
  {
    "name": "line-grid",
    "version": "0.0.1",
    "url": "git://github.com/rismenatay/line-grid.git",
    "type": "component"
  },
  {
    "name": "line-grid-csv",
    "version": "0.0.1",
    "url": "git://github.com/rismenatay/line-grid-csv.git",
    "type": "component"
  },
  {
    "name": "rspaaml",
    "version": "0.0.1",
    "url": "git://github.com/rspaauml/rspaaml.git",
    "type": "component"
  },
  {
    "name": "rspaaml",
    "version": "0.0.1",
    "url": "git://github.com/englishtown/rspaaml.git",
    "type": "component"
  },
  {
    "name": "t3nstack",
    "version": "0.0.1",
    "url": "git://github.com/t3n/t3nstack.git",
    "type": "component"
  },
  {
    "name": "st-mockit-web-design-standards",
    "version": "0.0.1",
    "url": "git://github.com/specrific/st-mockit-web-design-standards.git",
    "type": "component"
  },
  {
    "name": "resources",
    "version": "0.0.1",
    "url": "git://github.com/kilim/resources.git",
    "type": "component"
  },
  {
    "name": "identa",
    "version": "0.0.1",
    "url": "git://github.com/kilim/identa.git",
    "type": "component"
  },
  {
    "name": "izide",
    "version": "0.0.1",
    "url": "git://github.com/kilim/izide.git",
    "type": "component"
  },
  {
    "name": "izapuza-constants",
    "version": "0.0.1",
    "url": "git://github.com/kitzupaz/izapuza-traplay-3-twister-secutrap-3-configuration.git",
    "type": "component"
  },
  {
    "name": "izonet",
    "version": "0.0.1",
    "url": "git://github.com/kilim/izonet.git",
    "type": "component"
  },
  {
    "name": "izm-angular-util",
    "version": "0.0.1",
    "url": "git://github.com/ctis-flame/angular-util.git",
    "type": "component"
  },
  {
    "name": "iz-1o-expatjs",
    "version": "0.0.1",
    "url": "git://github.com/kitzupaz/iz-1o-expatjs.git",
    "type": "component"
  },
  {
    "name": "iz-angular-rabc",
    "version": "0.0.1",
    "url": "git://github.com/node-patches/angular-rabc.git",
    "type": "component"
  },
  {
    "name": "izan",
    "version": "0.0.1",
    "url": "git://github.com/izompl/izan.git",
    "type": "component"
  },
  {
    "name": "izlo-expat",
    "version": "0.0.1",
    "url": "git://github.com/kitzupaz/izlo-expat.git",
    "type": "component"
  },
  {
    "name": "izlib_proxifier",
    "version": "0.0.1",
    "url": "git://github.com/kitzupaz/izlib_proxifier.git",
    "type": "component"
  },
  {
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    "version": "0.0.1",
    "url": "git://github.com/kitzupaz/izlib_proxifier.git",
    "type": "component"
  },
  {
    "name": "izlib_proxifier_reuse",
    "version": "0.0.1",
    "url": "git://github.com/kitzupaz/izlib_proxifier_reuse.git",
    "type": "component"
  },
  {
    "name": "izlib_proxifier_reuse",
    "version": "0.0.1",
    "url": "git://github.com/kitzupaz/izlib_proxifier_reuse.git",
    "type": "component"
  },
  {
    "name": "izlib_1o-expat",
    "version": "0.0.1",
    "url": "git://github.com/kitzupaz/izlib_1o-expat.git",
    "type": "component"
  },
  {
    "name": "izlib_replayer",
    "version": "0.0.1",
    "url": "git://github.com/kitzupaz/izlib_replayer.git",
    "type": "component"
  },
  {
    "name": "izlib_replayer",
    "version": "0.0.1",
    "url": "git://github.com/kitzupaz/izlib_replayer.git",
    "type": "component"
  },
  {
    "name": "izlib_replayer",
    "version": "0.0.1",
    "url": "git://github.com/kitzupaz/izlib_replayer.git",
    "type": "component"
  },
  {
    "name": "izlib_replayer",
    "version": "0.0.1",
    "url": "git://github.com/kitzupaz/izlib_replayer.git",
    "type": "component"
  },
  {
    "name": "izmemory",
    "version": "0.0.1",
    "url": "git://github.com/izm/izmemory.git",
    "type": "component"
  },
  {
    "name": "izpm-lcsrcs",
    "version": "0.0.1",
    "url": "git://github.com/izm/lcsrcs.git",
    "type": "component"
  },
  {
    "name": "izrend",
    "version": "0.0.1",
    "url": "git://github.com/malwarey/izrendip.git",
    "type": "component"
  }
```



[Code](#)[Pull requests 5](#)[Pulse](#)[Graphs](#)Branch: **master** ▾**Specs / Specs /**inatu committed with **CocoaPodsBot** [Add] Cupid 1.0.4

..

**⚠ Sorry, we had to truncate this directory to 1,000 files. 14,793 entries were omitted from the list.**

[120301](#)[1210/0.0.9](#)[12306DeveCocoa](#)[1BAIDUSDKSYDemo](#)[1PasswordExtension](#)[1PasswordExtensionHaha](#)[25519](#)[320Categories](#)[3DTouchHelper/0.1](#)[500px-iOS-api](#)[7blur/0.0.1](#)

Code

Pull requests 5

Pulse

Graphs

Tree: 5e070...

Specs / Specs / NSLocation / 0.1.6 / NSLocation.podspec.json

Branch: master ▾

Specs / Specs /



inatu committed with CocoaPodsBot [Add] Cupid 1.0.4

..

**⚠ Sorry, we had to truncate this directory to 1,000 files. 14,793 entries were omitted**

120301

1210/0.0.9

12306DeveCocoa

1BAIDUSDKSYDemo

1PasswordExtension

1PasswordExtensionHaha

25519

320Categories

3DTouchHelper/0.1

500px-iOS-api

7blur/0.0.1



kennethjiang [Add] NSLocation 0.1.6

1 recent contributor

26 lines (25 sloc) | 794 Bytes

```
1  {
2   "name": "NSLocation",
3   "module_name": "NSLocation",
4   "version": "0.1.6",
5   "summary": "No-Sweat/No-Shit Location Service for iOS",
6   "description": "CoreLocation provided by iOS can provide anything but the most trivial",
7   "homepage": "https://github.com/Rhumbix/NSLocation.git",
8   "license": {
9     "type": "MIT",
10    "file": "LICENSE"
11  },
12  "authors": {
13    "Kenneth Jiang": "kenneth.jiang@gmail.com"
14  },
15  "social_media_url": "https://www.facebook.com/Rhumbix",
16  "platforms": {
17    "ios": "8.0"
18  },
19  "source": {
20    "git": "https://github.com/Rhumbix/NSLocation.git",
21    "tag": "0.1.6"
22  },
23  "source_files": "NSLocation/**/*.{h,swift}",
24  "requires_arc": true
25 }
```

# Git is the wrong place.



**Steve Streeting**

@stevestreeting

Software developer, many languages & platforms, current fad is Go, prev C/C++/ObjC/C#/Py/Java. Founder @SourceTree & #Ogre3D, now hacking on things @Atlassian

📍 Guernsey, Channel Islands

🔗 [stevestreeting.com](http://stevestreeting.com)

📅 Joined April 2010

“

*...frequent problems...because of large files clogging up [Git] repositories, slowing everything down, and making clone sizes intolerable...*

<https://developer.atlassian.com/blog/2015/10/contributing-to-git-lfs/>

I DON'T ALWAYS USE IN-HOUSE REPOSITORY...



YOU KNOW WHAT, I ACTUALLY ALWAYS DO.

Wait, how can I use an in-house repository when GitHub is hardcoded?





This repository Search

Pull requests Issues Gist

bower / bower

Watch 861



Code

Issues 198

Pull requests 33

Wiki

Pulse

Graphs

# Pluggable Resolvers Architecture #1649

Closed

jbaruch opened this issue on Jan 8, 2015 · 6 comments



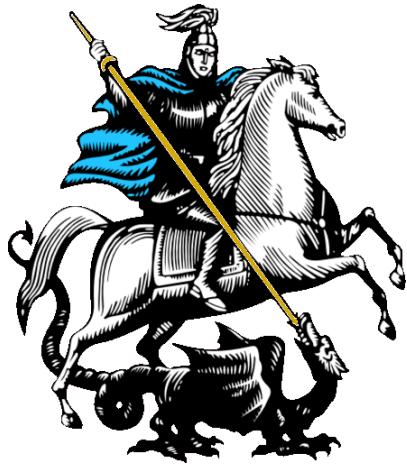
jbaruch commented on Jan 8, 2015



## Motivation

Bower resolvers mechanism is part of the Resolve process and is coupled with the Bower core; Therefore, extending Bower with custom (external) resolvers requires extending the Bower core project and having any resolver maintained by the Bower team.

In order to overcome this limitation, Bower needs a plugin-in system for resolvers, that will make it more flexible to extend Bower with custom resolvers and will allow external contributors to maintain these plugins.



## Lesson learned

Don't hardcore a central registry  
(specially of the incorrect type)

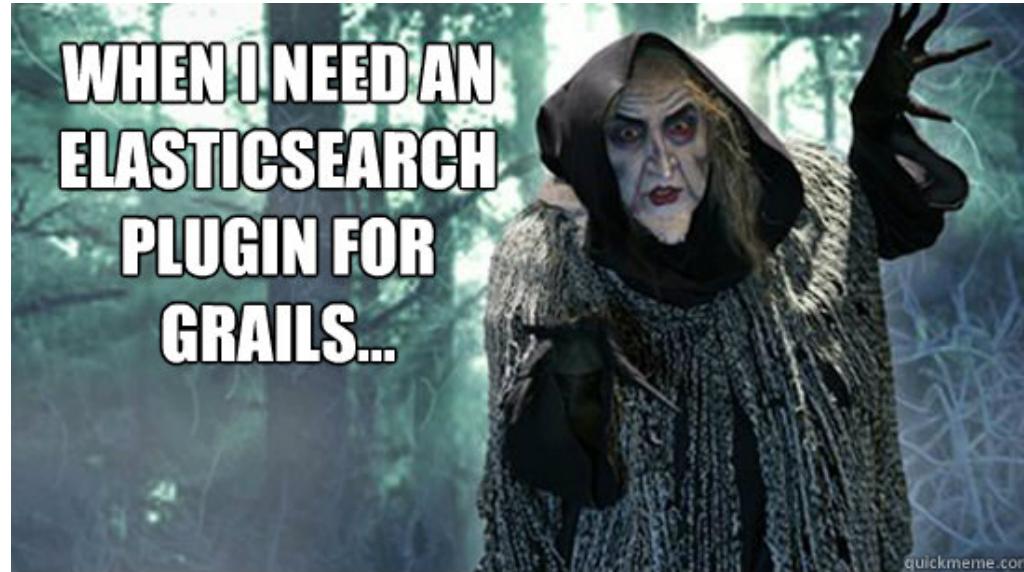
b

STORY NUMBER EIGHT

# Which witch watch which watch

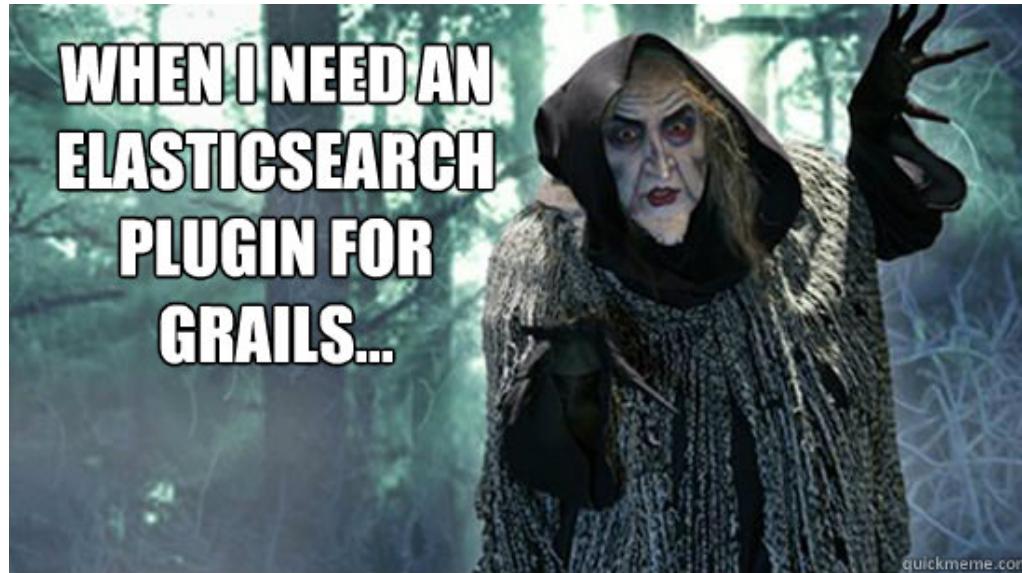


**WHEN I NEED AN  
ELASTICSEARCH  
PLUGIN FOR  
GRAILS...**



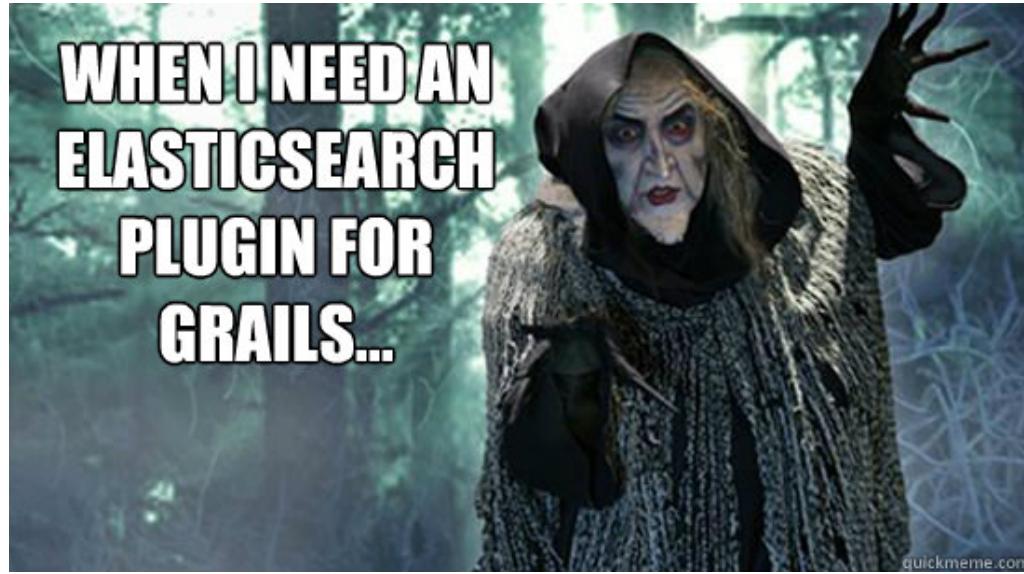
quickmeme.com

**WHEN I NEED AN  
ELASTICSEARCH  
PLUGIN FOR  
GRAILS...**

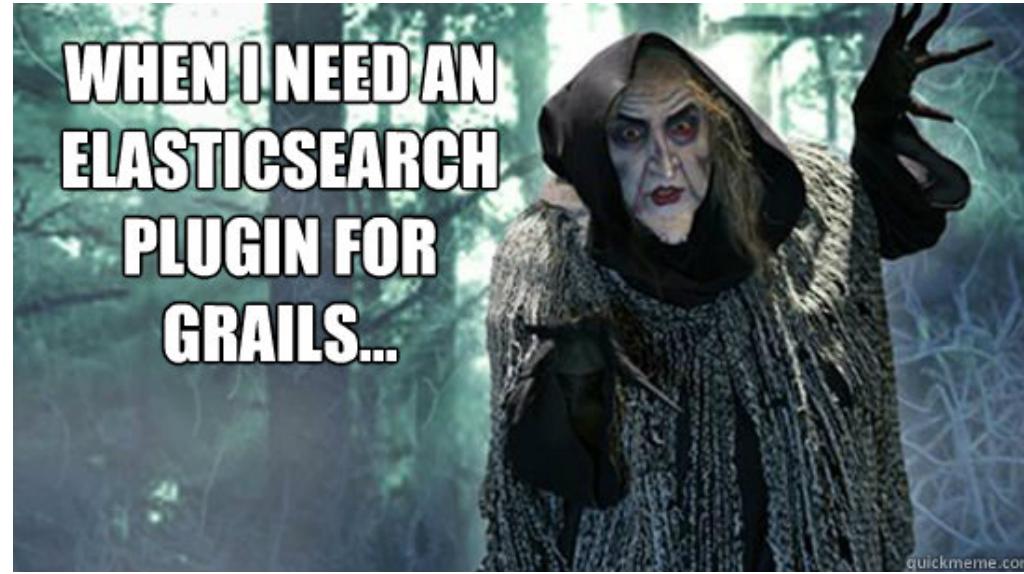


Which version of plugin

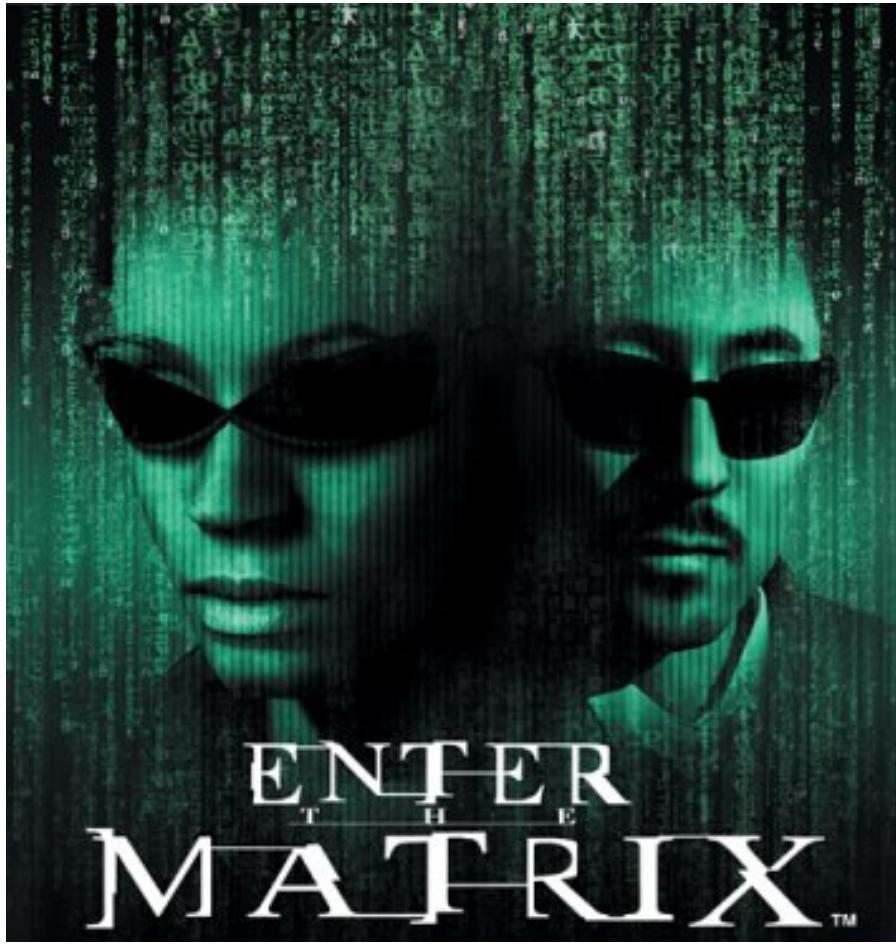
**WHEN I NEED AN  
ELASTICSEARCH  
PLUGIN FOR  
GRAILS...**



Which version of plugin  
for which version of elasticsearch



Which version of plugin  
for which version of elasticsearch  
works with which version of grails?





Wouldn't it be  
dreamy if there  
was a way to  
express version  
compatibility  
matrix?

# Java Community, Shame On You!



Here's how you do it:

# Here's how you do it:



# Here's how you do it:

rpm package manager

Provides:

PreReq:

Requires:

Conflicts:

Obsoletes:

in a spec file (i.e. the same parser is used), so items look like

```
/bin/sh          # file existence  
libc.so.6        # soname existence  
foo <= 1:2.3-4    # versioned package  
perl5(Apache) <= 1.2  # versioned namespace
```

# Here's how you do it:

rpm package manager

Provides:

PreReq:

Requires:

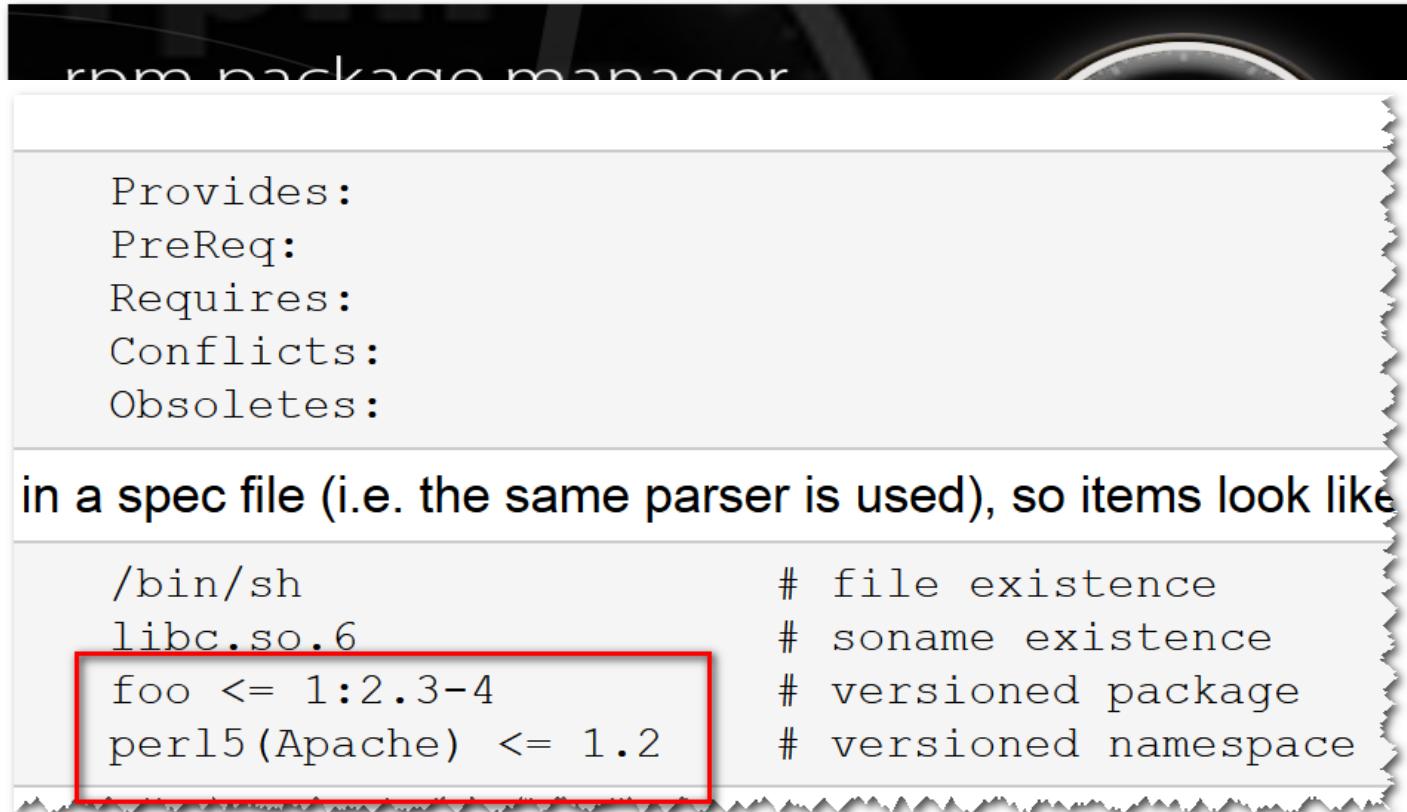
Conflicts:

Obsoletes:

in a spec file (i.e. the same parser is used), so items look like

```
/bin/sh          # file existence  
libc.so.6        # soname existence  
foo <= 1:2.3-4    # versioned package  
perl5(Apache) <= 1.2  # versioned namespace
```

# Here's how you do it:



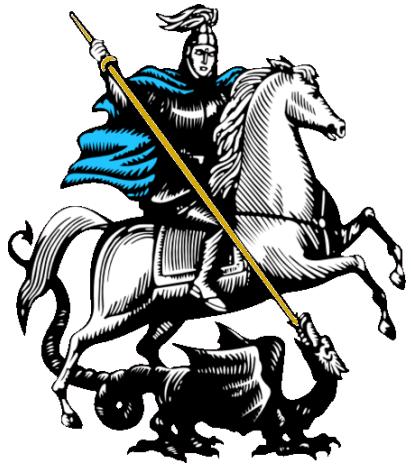
The screenshot shows a terminal window with a dark background and a light-colored text area. At the top, the text "rpm package manager" is visible. Below it, there is a list of fields with their corresponding values:

- Provides:
- PreReq:
- Requires:
- Conflicts:
- Obsoletes:

Below this list, the text "in a spec file (i.e. the same parser is used), so items look like" is displayed. Following this, there is a list of package dependencies and their descriptions:

/bin/sh	# file existence
libc.so.6	# soname existence
foo <= 1:2.3-4	# versioned package
perl5(Apache) <= 1.2	# versioned namespace

A red rectangular box highlights the line "foo <= 1:2.3-4".



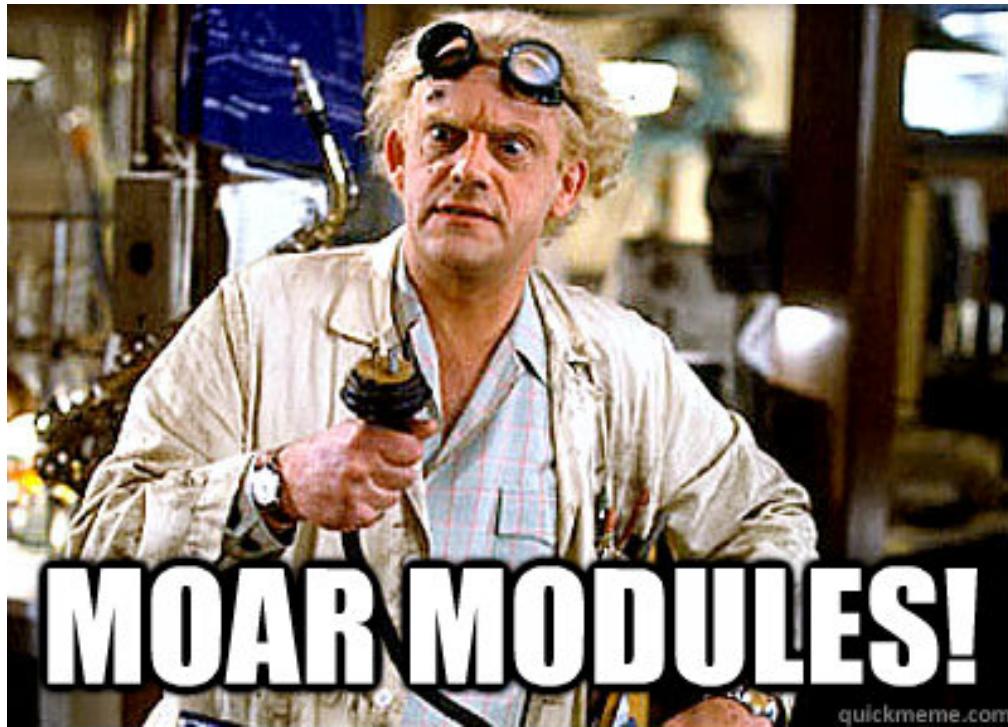
## Lesson learned

Version Dependency isn't enough

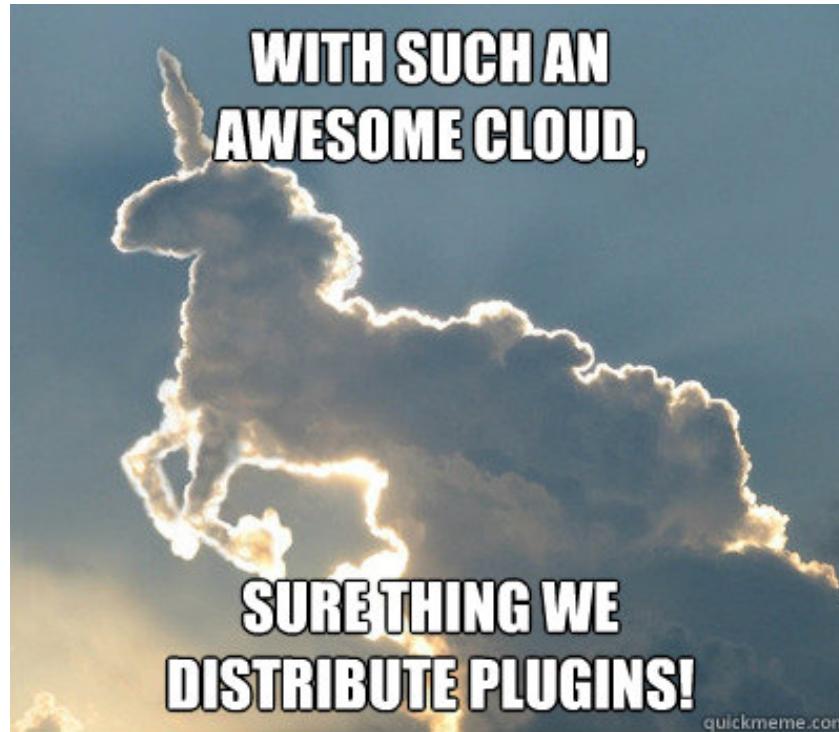
Support dependency matrix

fACDdb  
NO MORE STORIES,  
ONE MORE THING<sub>ooo</sub>

# Doc predicts



# All you need is cloud





That's all,  
folks!