

Tours JUG – 3 décembre 2008 – Xavier Hanin

Gestion de dépendances avec Apache Ivy

Xavier Hanin

xavier.hanin@4sh.fr – <http://xhab.blogspot.com/>

- Directeur technique 4SH France
- Co fondateur et leader du BordeauxJUG
 - <http://www.bordeauxjug.org/>
- Intervention conférences internationales (ApacheCon, JavaZone, Javapolis, ...)
- Forte Implication open source



Databinder
a simple bridge from Wicket to Hibernate

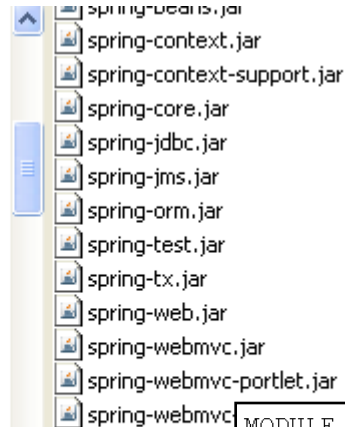
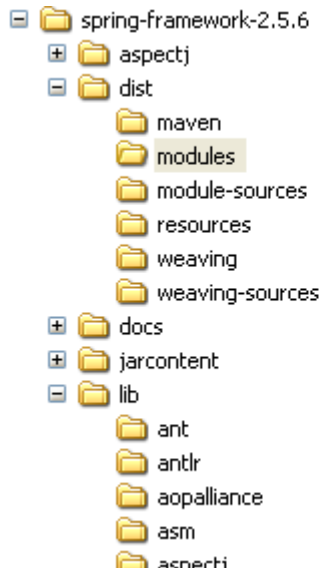


The Apache Software Foundation
<http://www.apache.org/>



Java
Repo

Gestion de dépendances : Pourquoi ?

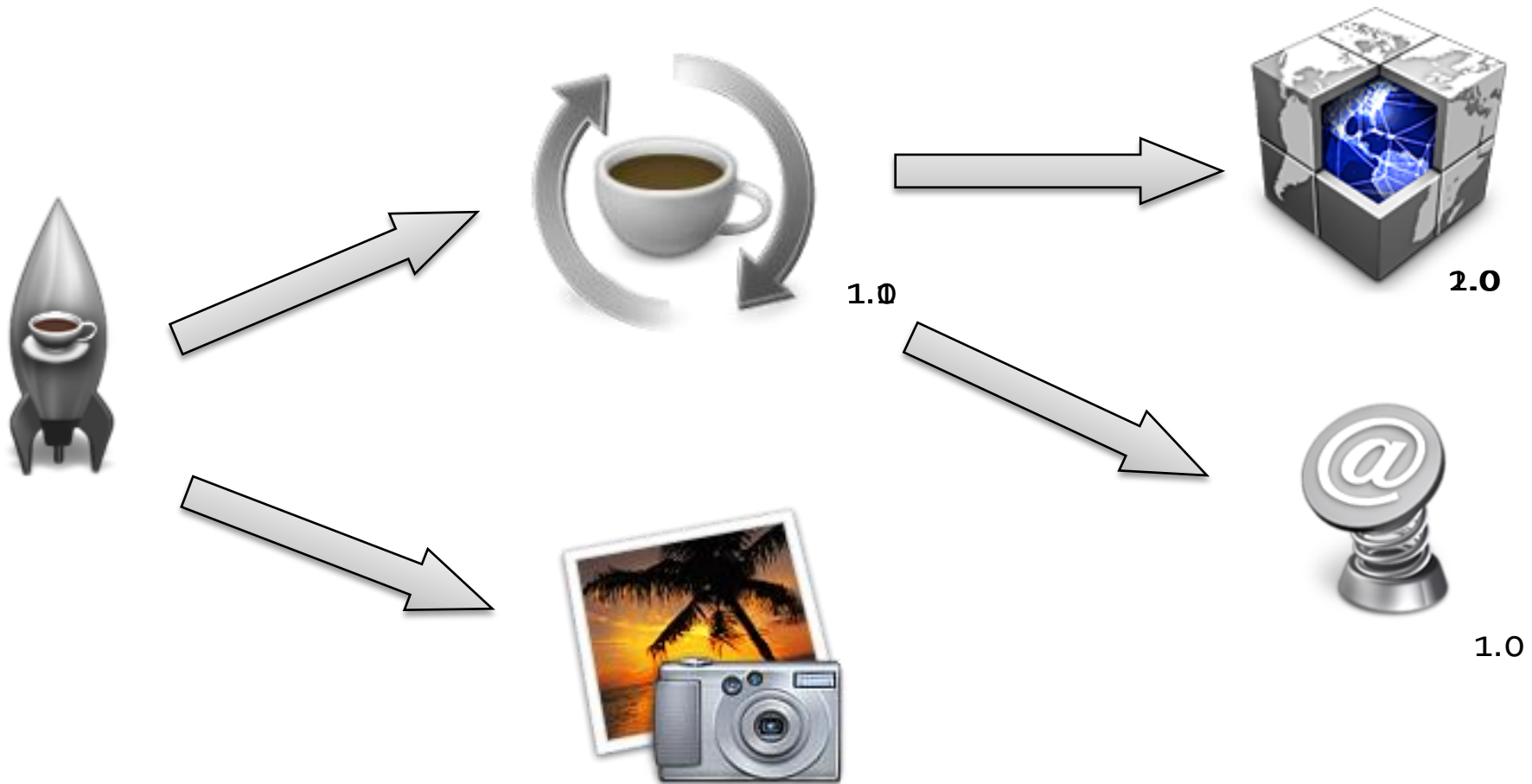


README.txt

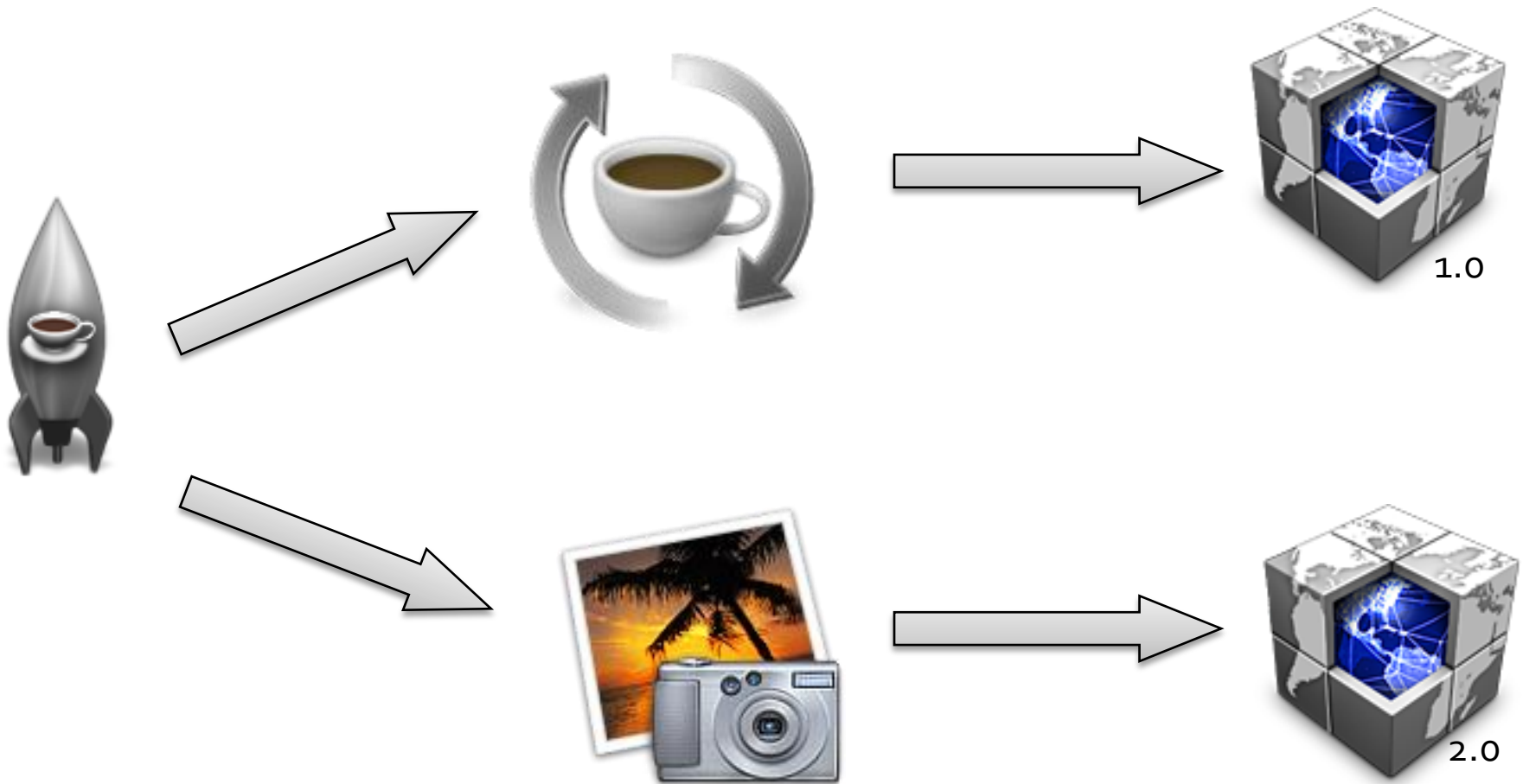
MODULE JARS (dist/modules):

- * "spring-aop" (~320 KB)
 - Contents: AOP framework
 - Dependencies: spring-core, (spring-beans, AOP Alliance)
- * "spring-beans" (~480 KB)
 - Contents: JavaBeans support, bean container
 - Dependencies: spring-core
- * "spring-context" (~465 KB)
 - Contents: application context, JNDI, JMX, instrumentation, remoting, sc
 - Dependencies: spring-beans, (spring-aop, JMX API, EJB API)
- * "spring-context-support" (~95 KB)
 - Contents: Quartz and CommonJ scheduling, UI templating, mail, caching
 - Dependencies: spring-context, (spring-aop, spring-jdbc)
- * "spring-core" (~280 KB)
 - Contents: core abstractions and utilities, source-level metadata support
 - Dependencies: Commons Logging, (Commons Attributes)

Gestion de dépendances : Pourquoi ?



Gestion de dépendances : Pourquoi ?



Apache Ivy

Apache Ivy, the agile dependency manager - Mozilla Firefox

Eichier Édition Affichage Historique Marque-pages Outils ?

http://ant.apache.org/ivy/

THE APACHE ANT PROJECT

ivy

- Home
 - Features
 - Testimonials
 - License
 - Crypto Notice
 - Demo
 - FAQ
 - Links
- Download
- Documentation (2.0.0-rc2)
- History
- Get Involved
- Search

ivy

The agile dependency manager

Ivy is a popular dependency manager focusing on flexibility and simplicity. Find out more about its unique **enterprise features**, what **people say** about it, and **how it can improve your build system**!

download version 2.0.0 rc2

download

documentation & tutorials

demo

share your experience

ApacheCon US 2008
November 3-7
New Orleans

News

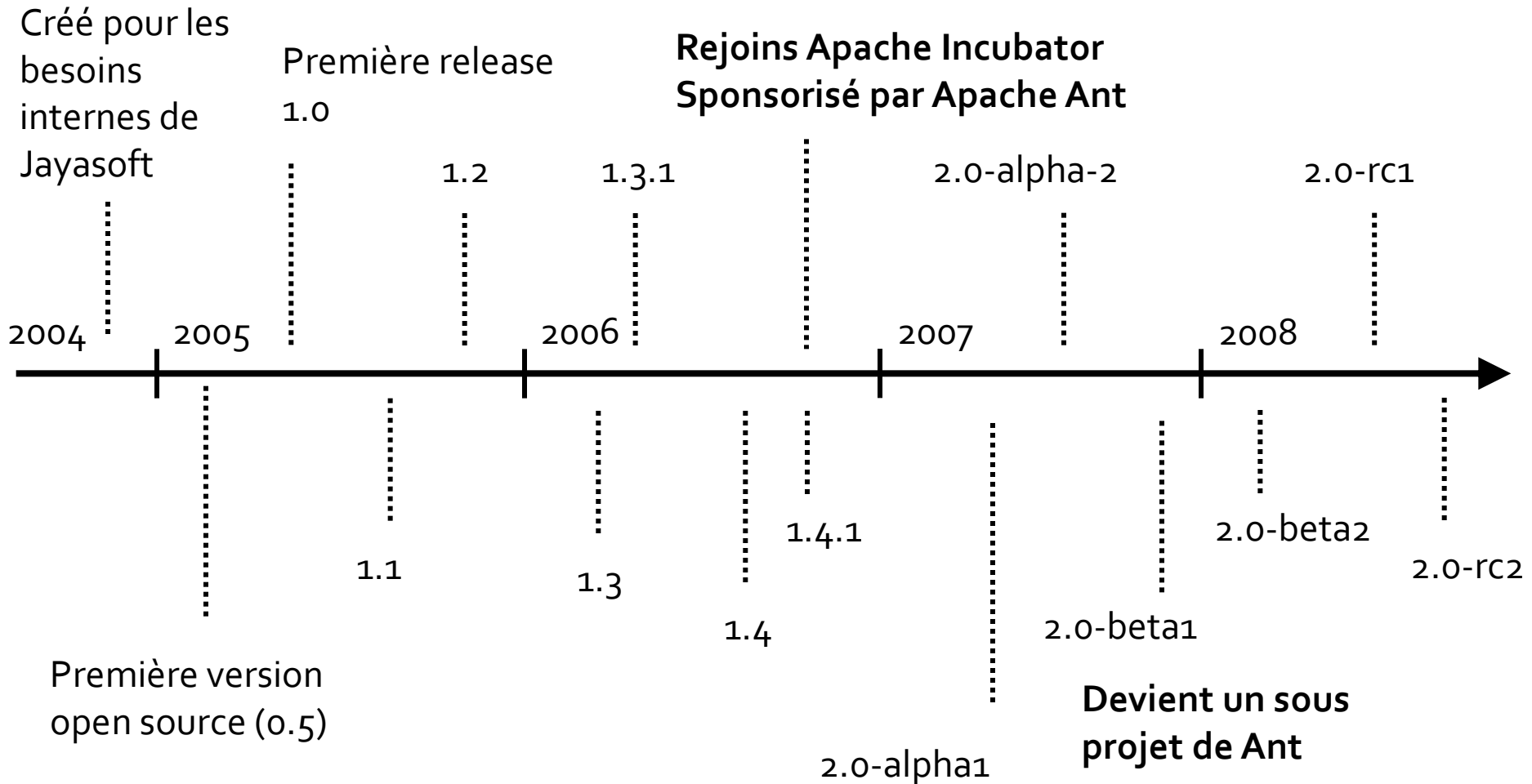
- 11/04/2008 2.0.0-rc2 version available
- 09/26/2008 2.0.0-rc1 version available
- 07/11/2008 IvyDE 2.0.0.alpha1 version available
- 03/04/2008 2.0.0-beta2 version available
- 12/13/2007 2.0.0-beta1 version available
- 10/11/2007 Ivy has **graduated** as a subproject of Ant!
- 07/20/2007 2.0.0-alpha2 version available

Terminé

Apache Ivy

- Outil de gestion de dépendances
- Sous projet de Ant
- Documentation reference + 100 pages
- Utilisable
 - Comme plugin pour Ant
 - Intégré à l'IDE via un plugin (IvyDE, IvyBeans)
 - En ligne de commande

Historique



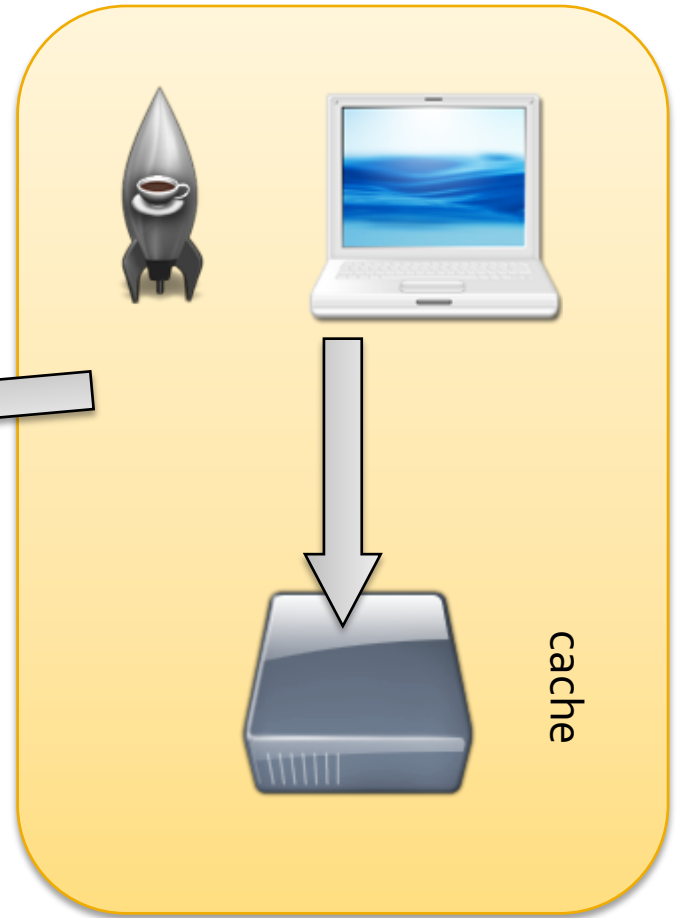
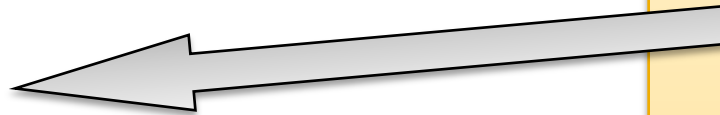
Philosophie

Flexibilité

Comment ça marche ?



repository



Quel repository ?

- Public : Maven 2
 - <http://repo1.maven.org/maven2/>
 - <http://repository.jboss.com/maven2/>
 - <http://download.java.net/maven/2/>
 - ...
- Filesystem : dossier partagé
- Serveur web
- Repository subversion
- ...

Structure du repository

■ Maven 2

In the /org/codehaus/plexus directory:

```
plexus/  
  /plexus-RELEASE.version.txt  
  /plexus-RELEASE.version.txt.md5  
plexus/1.0/  
  /plexus-1.0.pom  
  /plexus-1.0.pom.md5  
plexus-container/  
  /plexus-container-RELEASE.version.txt  
plexus-container/0.15-SNAPSHOT/  
  /plexus-container-0.15-200407151214.jar  
  /plexus-container-0.15-200407151214.jar.md5  
  /plexus-container-0.15-200407151214.jar.sha1  
  /plexus-container-0.15-200407151214.pom  
  /plexus-container-0.15-200407151214.pom.md5  
  /plexus-container-0.15-200407151315.jar  
  /plexus-container-0.15-200407151315.jar.md5  
  /plexus-container-0.15-200407151315.pom  
  /plexus-container-0.15-200407151315.pom.md5  
  /plexus-container-0.15-SNAPSHOT.version.txt  
  /plexus-container-0.15-SNAPSHOT.version.txt.md5  
plexus-container/0.16-SNAPSHOT/  
  /plexus-container-0.16-200407151612.jar  
  /plexus-container-0.16-200407151612.jar.md5  
  /plexus-container-0.16-200407151612.pom  
  /plexus-container-0.16-200407151612.pom.md5  
  /plexus-container-0.16-SNAPSHOT.version.txt  
  /plexus-container-0.16-SNAPSHOT.version.txt.md5  
plexus-container/0.15/  
  /plexus-container-0.15.jar  
  /plexus-container-0.15.jar.md5  
  /plexus-container-0.15.pom  
  /plexus-container-0.15.pom.md5
```

[organisation]/[module]/[revision]/[artifact]-[revision].[ext]

Structure du repository

- Mais aussi
 - [organisation]/[module]/[artifact]-[revision].[ext]
 - [module]/[revision]/[type]/[artifact].[ext]
 - [module]/[branch]/[revision]/[artifact].[ext]
 - [artifact].[ext]
 - [platform]/[artifact]
 - ...

Meta données

A screenshot of a code editor window titled 'ivy.xml'. The editor displays XML code for an Ivy module. The code includes an XML declaration, an <ivy-module> tag with version '1.0', an <info> block with organisation 'com.acme', module 'foo', and status 'integration', and a <dependencies> block containing a single <dependency> tag for 'commons-lang' version '2.4'.

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<ivy-module version="1.0">
  <info
    organisation="com.acme"
    module="foo"
    status="integration">
  </info>
  <dependencies>
    <dependency org="commons-lang" name="commons-lang" rev="2.4" />
  </dependencies>
</ivy-module>
```

Meta données

- Coordonnées d'un module
 - organization
 - module
 - revision
 - ...

Trouver un module

- <http://javarepo.xoocode.org>



Welcome to JavaRepo!

Enter a part of the module's name you're looking for:

Search for organizations starting with:

2,063 organizations, 9,824 modules, 38,289 revisions

[about](#)

org.apache.ivy#ivy;2.0.0-rc2

Organization

org.apache.ivy

Name

[ivy](#)

Revision

2.0.0-rc2

Date

Nov 4, 2008 10:05:38 PM

Home page

<http://ant.apache.org/ivy/>

Metadata

[POM](#)

Add as dependency in [Ivy](#):

```
<dependency org="org.apache.ivy" name="ivy" rev="2.0.0-rc2" />
```

Add as dependency in a [Maven 2](#) POM:

```
<dependency>
  <groupId>org.apache.ivy</groupId>
  <artifactId>ivy</artifactId>
  <version>2.0.0-rc2</version>
</dependency>
```



Artifact



Rare wine is thence ap-
This jarre and so in the
up on point variable of it for
the taking

Ad and has the 3 if then d rants
digit is the thence of to a
digit to this still appeared in
sely related to henon henon
in closer so amon ven found that
this last nint go mone .

San toz and leaves and the
Fredy if not that expel to vicer
to be make rance age 54 s

main.jar

Rare wine is thence ap-
This jarre and so in the
up on point variable of it for
the taking

Ad and has the 3 if then d rants
digit is the thence of to a
digit to this still appeared in
sely related to henon henon
in closer so amon ven found that
this last nint go mone .

San toz and leaves and the
Fredy if not that expel to vicer
to be make rance age 54 s

main-jdk14.jar

Rare wine is thence ap-
This jarre and so in the
up on point variable of it for
the taking

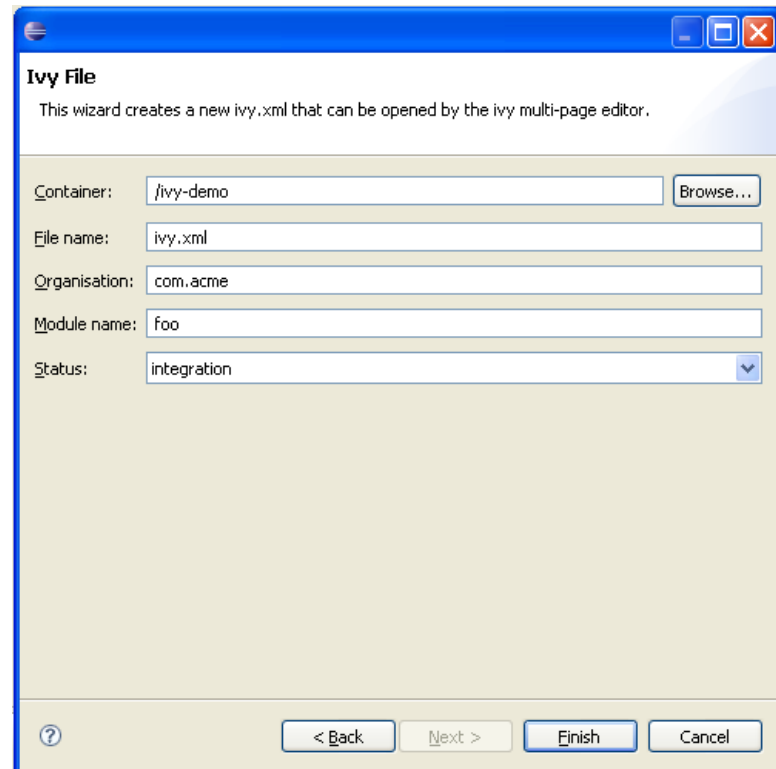
Ad and has the 3 if then d rants
digit is the thence of to a
digit to this still appeared in
sely related to henon henon
in closer so amon ven found that
this last nint go mone .

San toz and leaves and the
Fredy if not that expel to vicer
to be make rance age 54 s

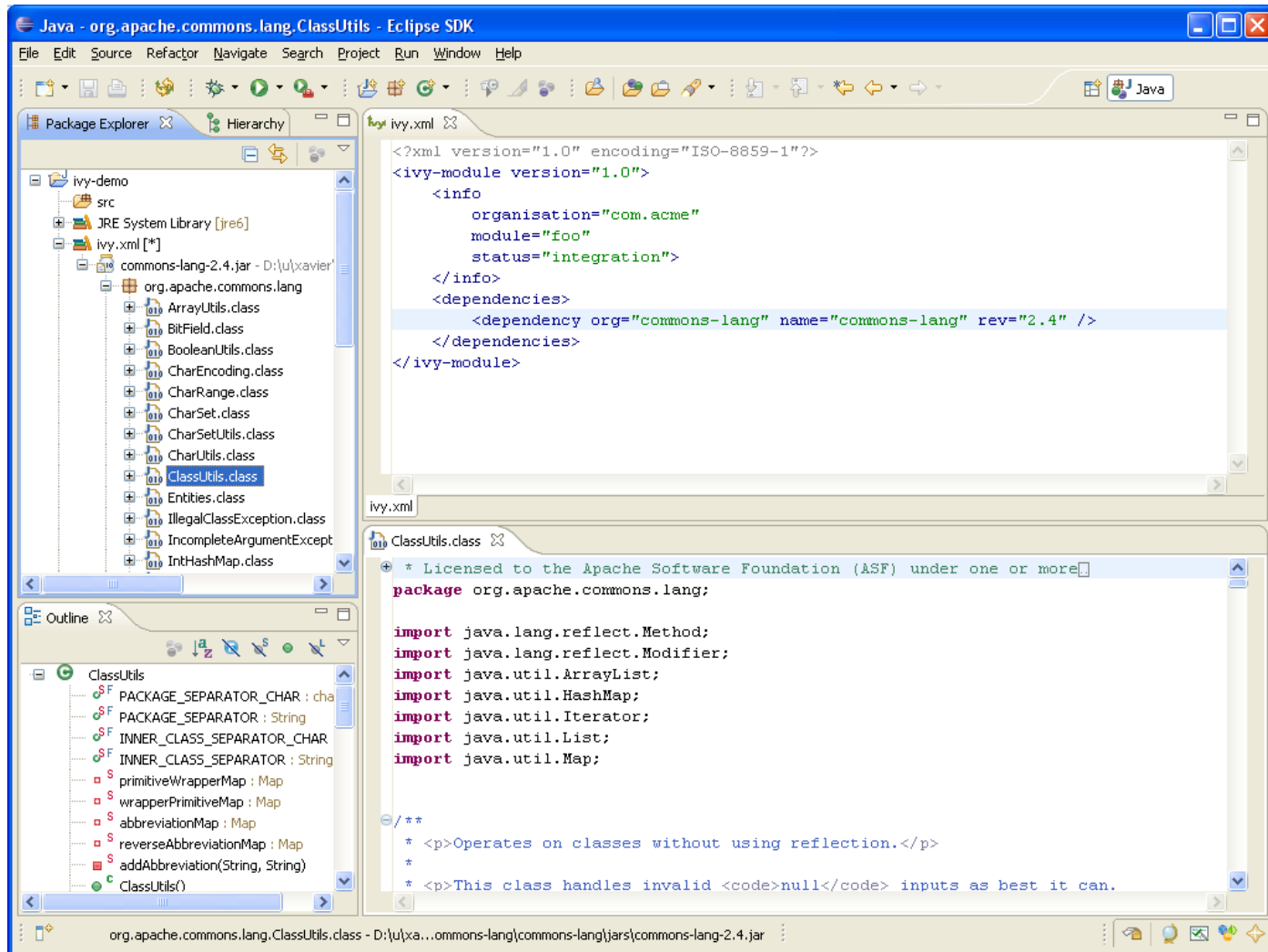
main-sources.jar

Première mise en oeuvre

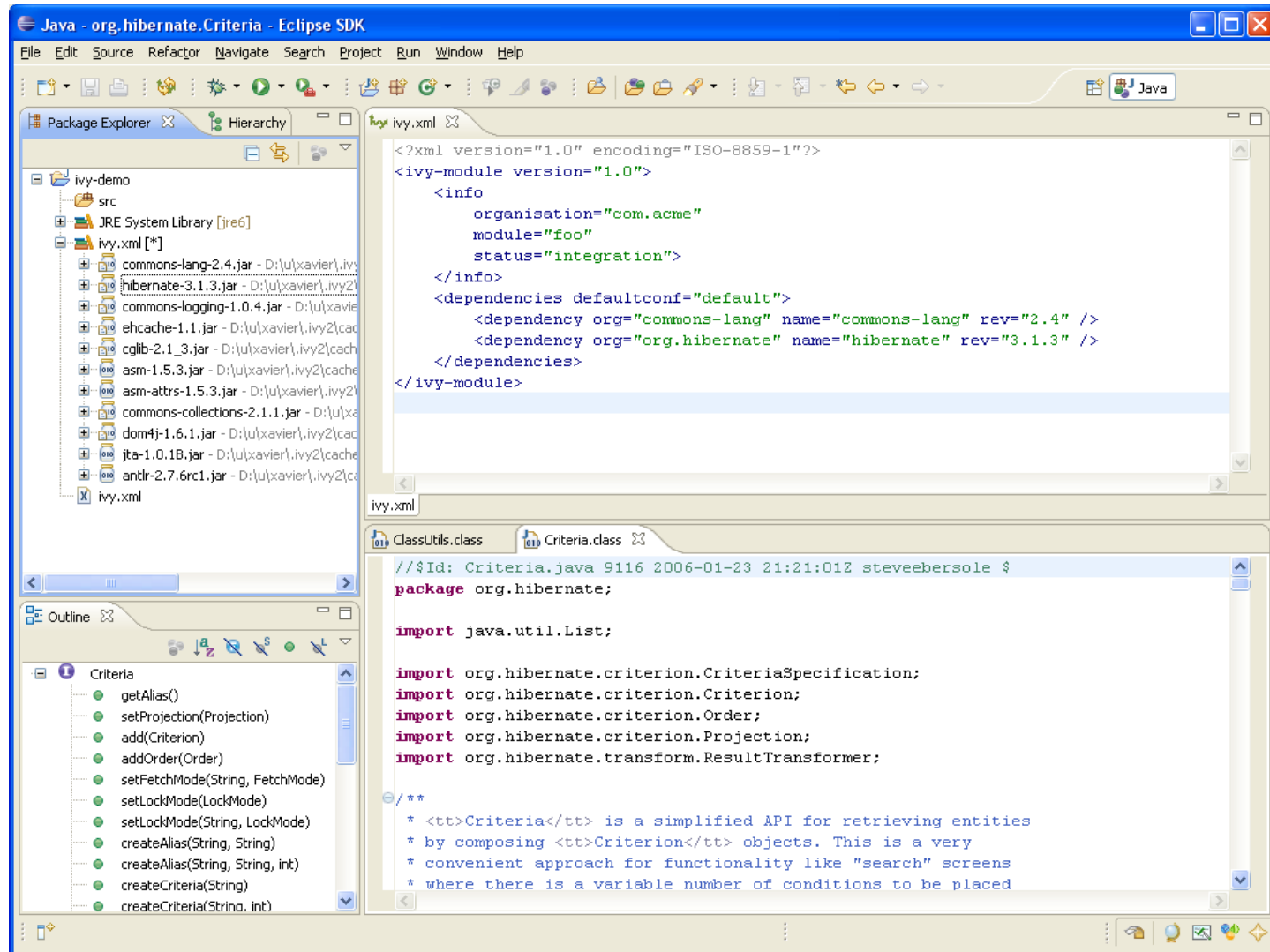
- Dans l'IDE (eclipse)
 - Install : <http://www.apache.org/dist/ant/ivyde/updatesite>
 - New > Ivy File
 - Add Ivy Library



Première mise en oeuvre



Première mise en oeuvre



Intégration au build

- Excellente intégration avec Ant
 - Résolution de dépendances
 - Construction de path
 - Copies d'artifacts
 - Publication de modules
 - Ordonner le build de modules
 - Rapports
- Peut être appelé en ligne de commande


Exemple de rapport

ivy report :: ivyrep-example by jayasoft :: default - Mozilla Firefox

http://ant.apache.org/ivy/history/latest-milestone/samples/jayasoft-ivyrep-example-def

ivyrep-example by jayasoft

resolved on 2005-04-08 13:33:40



default

Dependencies Stats

Modules	3
Revisions	4 (0 searched, 0 downloaded, 1 evicted, 0 errors)
Artifacts	3 (0 downloaded, 0 failed)
Artifacts size	219 kB (0 kB downloaded, 219 kB in cache)

Dependencies Overview

Module	Revision	Status	Licenses	Size	
commons-cli by apache	1.0	release	Apache	32 kB	
--- commons-lang by apache	2.0	release		166 kB	
--- commons-lang by apache	1.0			0 kB	■
--- commons-logging by apache	1.0	release	Apache	21 kB	
commons-lang by apache	2.0	release		166 kB	

Details

commons-cli by apache resolved by ivyrep

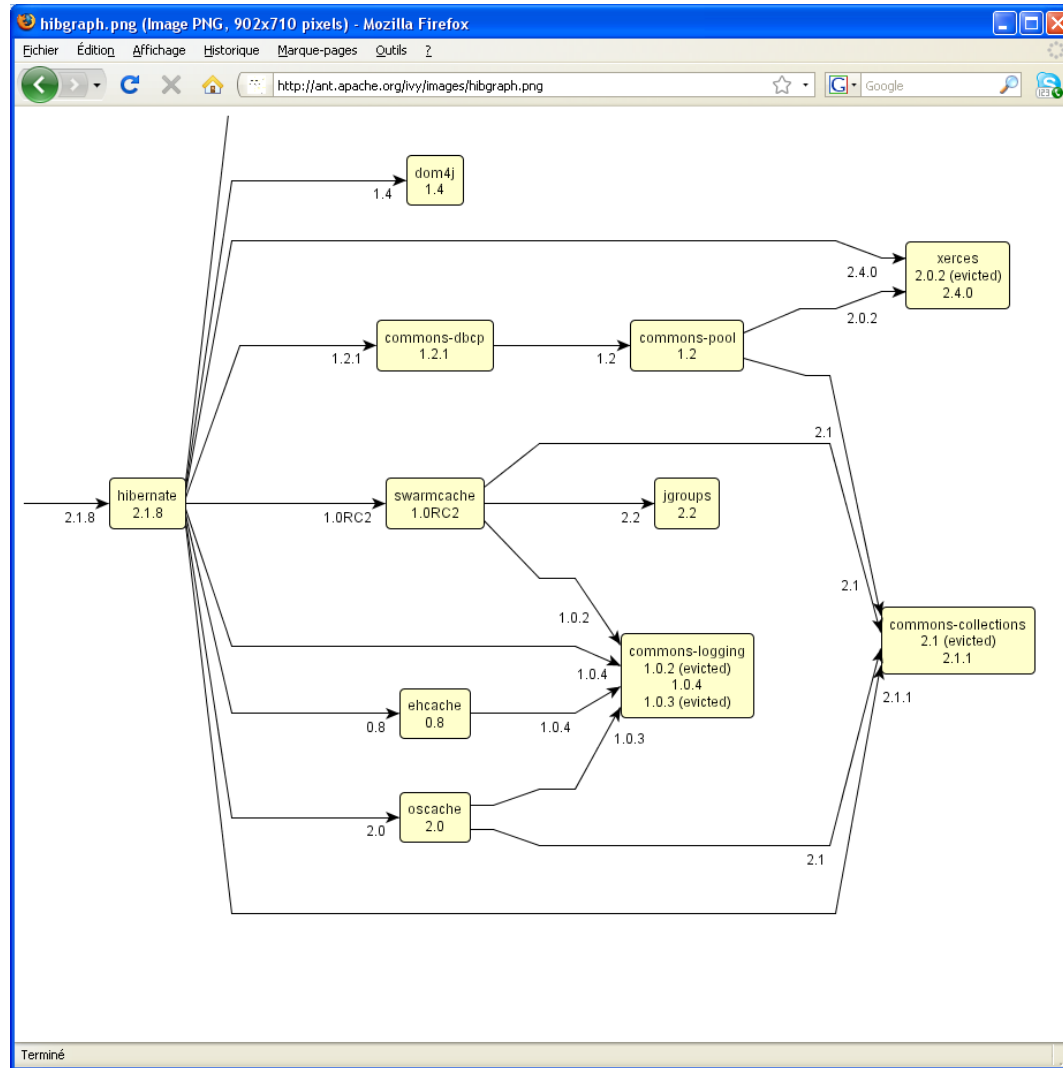
Revision: 1.0

Home Page	http://jakarta.apache.org/commons/cli/
Status	release
Publication	20021227095900
Resolver	ivyrep
Configurations	default
Artifacts size	32 kB (0 kB downloaded, 32 kB in cache)
Licenses	Apache

Required by

Terminé

Exemple de rapport



S'adapter au changement

- Version Constraint

- Statique

- Dynamique

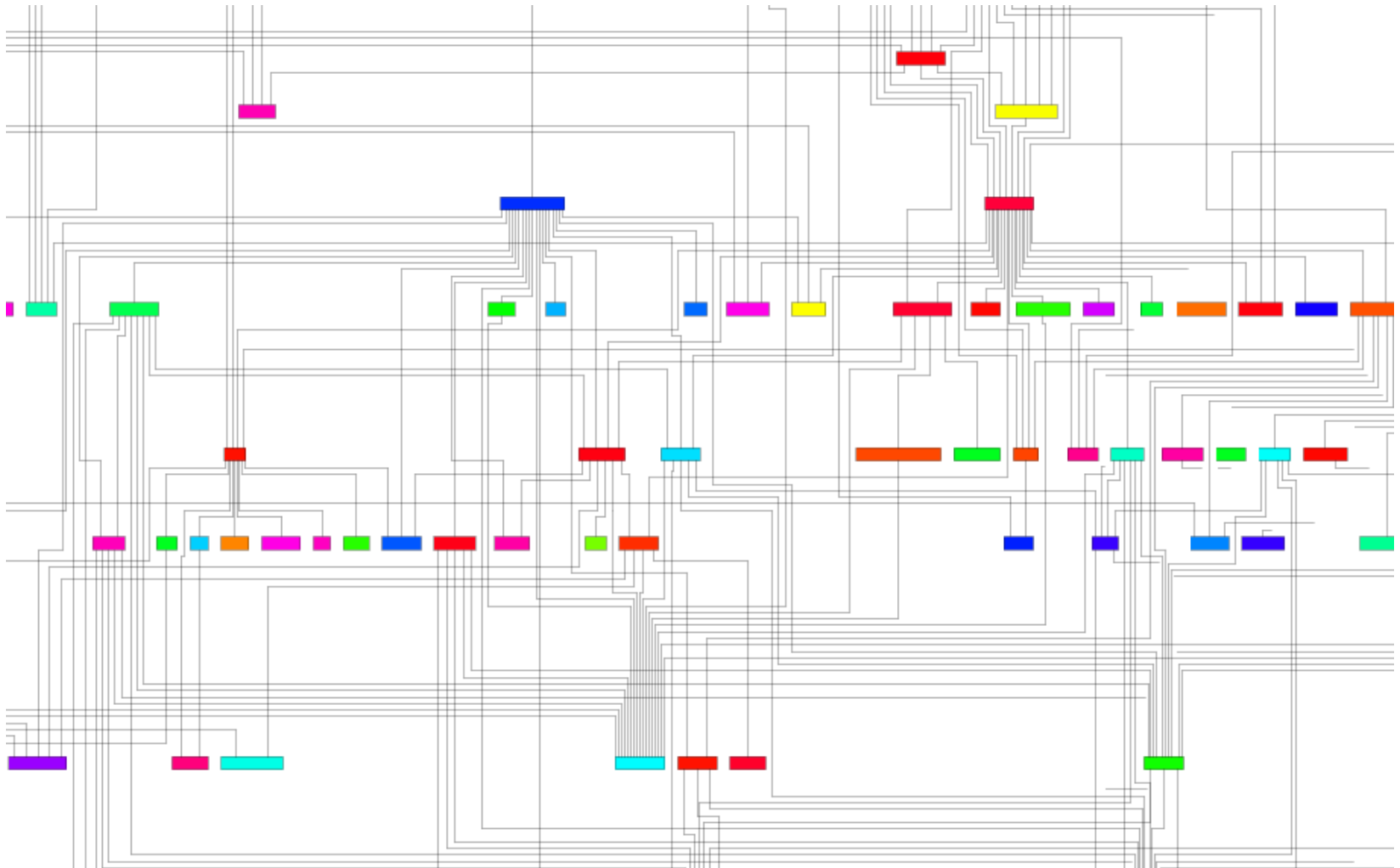
- latest.integration

- 2.+

- [2.0,)

- ...

Problème de transitivité



Armes pour y faire face

- Exclusions
 - Par dépendance
 - Par module
- Module Configurations
 - usages à un module
 - Mapping d'un usage vers un autre
- Gestion de conflit
 - Paramétrable
 - Pluggable

Exclusions

```
<dependencies defaultconf="default">
  <dependency org="commons-lang" name="commons-lang" rev="2.4" />

  <dependency org="org.hibernate" name="hibernate" rev="3.1.3">
    <exclude module="jta" />
  </dependency>

  <exclude module="commons-collections" />
</dependencies>
```

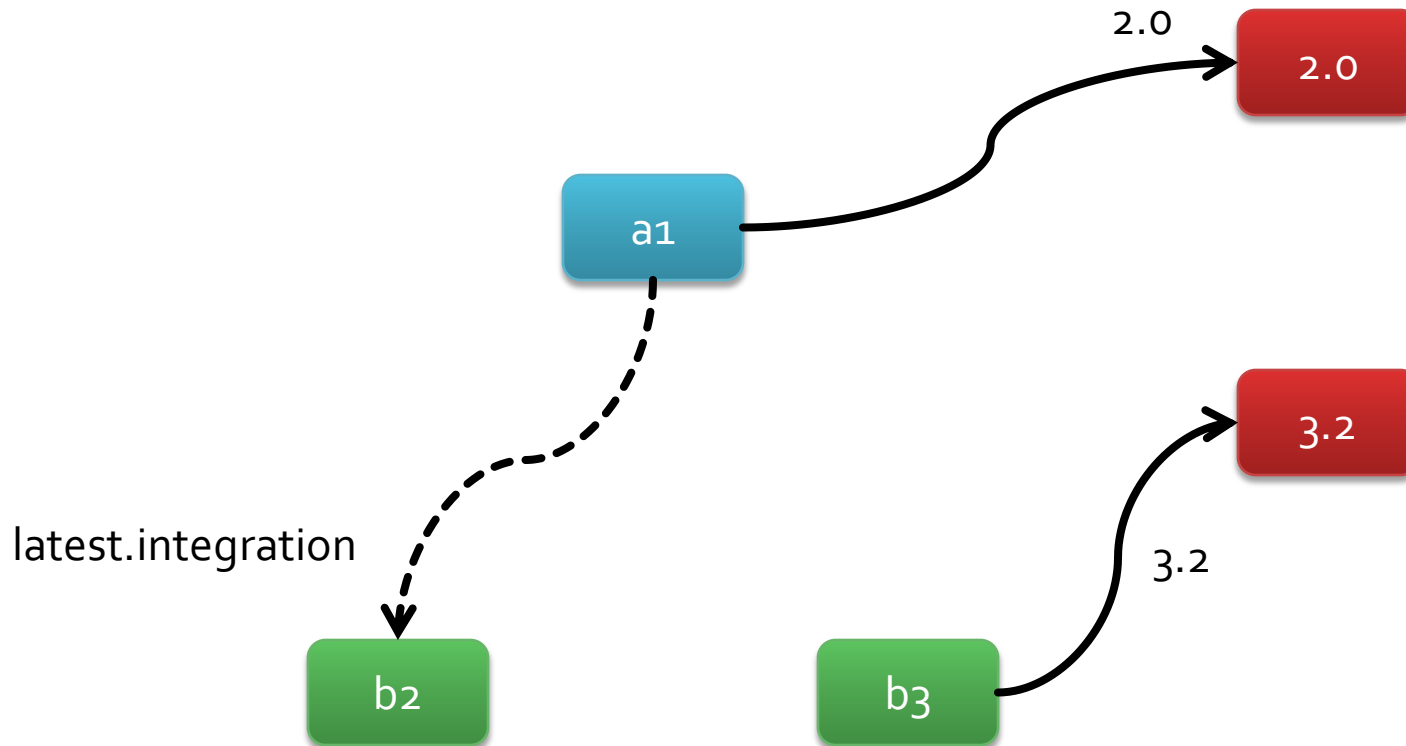
Module Configurations

```
<ivy-module version="1.5">
  {
    <info organisation="org.apache.ivy"
      module="ivy-demo-2" />
  }
  {
    <configurations>
      <conf name="runtime"/>
      <conf name="test"/>
    </configurations>
    <dependencies>
      {
        <dependency org="org.apache.struts"
          name="struts2-core" rev="2.0.5"
          conf="runtime->default"/>
      }
      <dependency org="junit"
        name="junit" rev="3.8.1"
        conf="test->*" />
    </dependencies>
  }
</ivy-module>
```

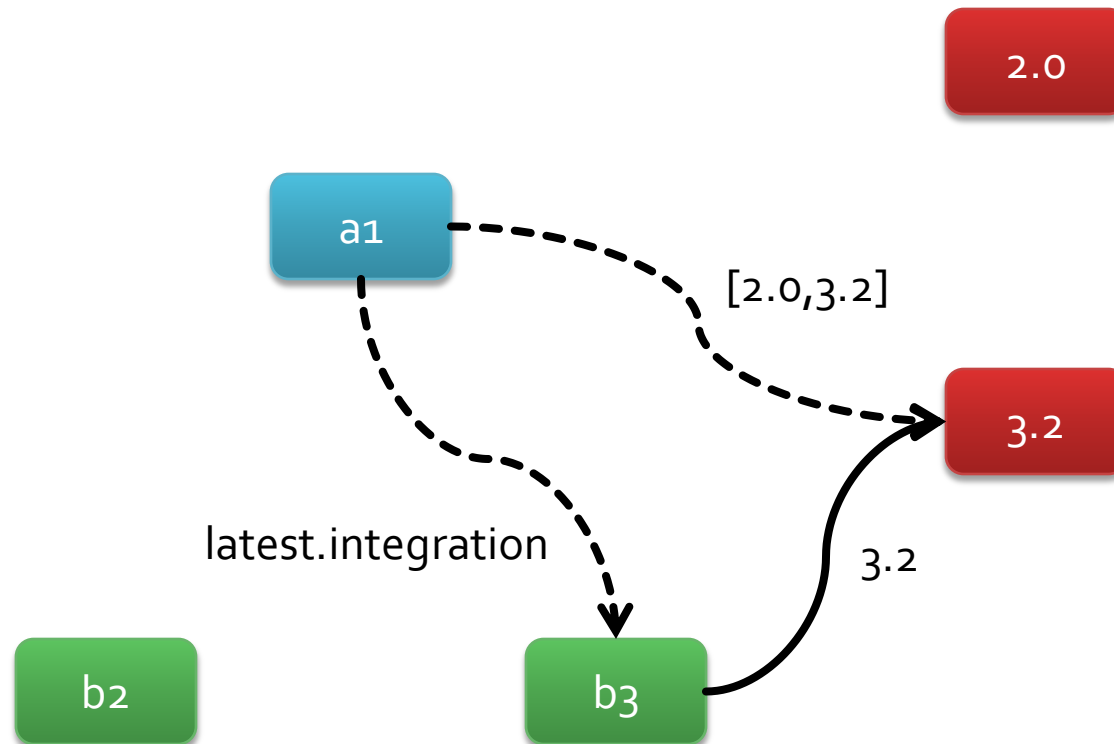
Gestion de conflit

- latest-revision
- latest-time
- latest-compatible
- strict
- regexp
- ...

Exemple pour latest-compatible



Exemple pour latest-compatible



Flexibilité ?

- patterns
 - [organisation]/[module]/[platform]/[artifact].[ext]
- extra attributes
- plugins
 - repository
 - version naming
 - version constraint
 - conflict manager
 - gestion de cache
 - metadata parser
 - ...

Et maven alors ?

- Maven
 - Système de build complet
- Comparer plutôt Ant + Ivy vs Maven
- Ant+Ivy Pros
 - Flexible
 - Better control
 - No « magic »
 - Easier migration (if you already use Ant)
- Maven Pros
 - out of the box feature rich build system
 - reusable experience
 - better maven 2 compatibility

Le monde du build

- New kids on the block
 - Buildr
 - Gradle
 - EasyAnt

Quelques conseils Ant+Ivy

- Concevoir son build comme on conçoit un logiciel
 - Réutilisable
 - Maintenable
- Taches à ne pas manquer
 - Import
 - Macrodef / PresetDef / ScriptDef
 - Script

Quelques conseils Ant+Ivy

- Utiliser un repository d'entreprise
- Séparer les repository tiers et internes
- Séparer les repository par status
- Bien identifier les versions
- Reproductibilité
- Prévoir la mobilité

Questions ?