

An introduction to the CARGO package manager

Christophe Demarey, Pharo Days 2017



Motivations



- package dependencies as 1st class citizens
 - allow tools to take benefit of this data
- ease modularization
 - describe / review dependencies easily

Synthetic package descriptions

```
Package {  
  #name : 'Seaside',  
  #version : 3.1.0,  
  #description : 'The framework for developing  
    sophisticated web applications in Smalltalk.',  
  #website : 'http://www.seaside.st',  
  #dependencies : {  
    'Grease' : 1.1,  
    'Seaside-Core' : 3.1.0,  
    'Seaside-Canvas' : 3.1.0,  
    'Seaside-Session' : 3.1.0,  
    'Seaside-Component' : 3.1.0,  
    'Seaside-RenderLoop' : 3.1.0,  
    'Seaside-Tools-Core' : 3.1.0,  
    'Seaside-Flow' : 3.1.0,  
    'Seaside-Environment' : 3.1.0,  
    'Seaside-Widgets' : 3.1.0  
  }  
}
```

Motivations



- support update strategies through the use of semantic versioning
- reduce dependencies description time/size through better handling of platform-specific packages
- provide a central place to search for packages, project (or package) descriptions

Cargo features



- load packages from central package repository or any other package repository



- ease Git project development by allowing to load / save a project (and all its dependencies) directly to Git.



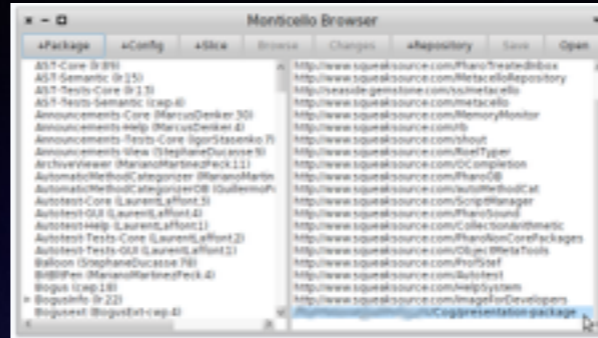
- serializable load instructions (reproducible loadings)



- package metadata managed by a STON file

Cargo features

- VCS support:



- Monticello (publication, loading)
- Git (publication, metadata saving, loading)

- put focus on projects



- actions are defined on projects to save / publish a project at once

Model



Package
Unit



Package
Assembly



3 kind of packages

Management of platform-specific packages

- pb: hard-coded package selection in the dependency description

- ex:

```
1 spec
2   group: 'Core'
3   with: #('CoolBrowser-Core' 'CoolBrowser-Platform')
4 spec
5   for: #gemstone
6   do: [ spec
7         package: 'CoolBrowser-Platform'
8         with: 'CoolBrowser-PlatformGemstone' ]
9 spec
10  for: #pharo
11  do: [ spec
12        package: 'CoolBrowser-Platform'
13        with: 'CoolBrowser-PlatformPharo' ]
```

Management of platform-specific packages

Solution:

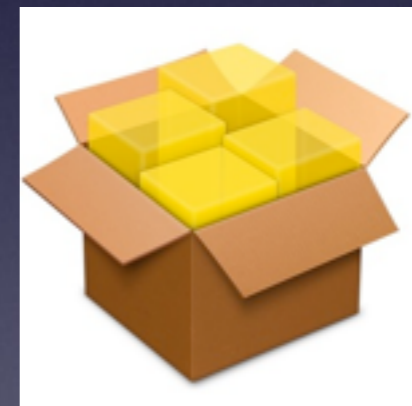
use Virtual packages and let the solver choose the right package



CoolBrowser-PlatformPharo



CoolBrowser-
PlatformGemstone



CoolBrowser-Platform

Load a package

Cargo new

package: 'MyProject@1.3';

install



Load instructions

loadInstructions := Cargo new

package: 'MyProject@1.3';

loadInstructions



Load instructions




loadInstructions saveTo:
'MyProject-1.3-loadinstr.ston' asFileReference.

Cargo new
installFromFile: 'MyProject-1.3-loadinstr.ston'
asFileReference.




Central package repository



Packagist

The PHP package archivist.

[Submit Package](#)

[twitter/bootstrap](#) 

[framework](#) [css](#) [JS](#) [web](#) [less](#) [responsive](#) [front-end](#) [mobile-first](#)

The most popular front-end framework for developing responsive, mobile first projects on the web.

Maintainer: [pjkix](#)
Homepage: [getbootstrap.com](#)
Canonical: <https://github.com/twbs/bootstrap>
Source: <https://github.com/twbs/bootstrap/tree/fix-14038>
Issues: <https://github.com/twbs/bootstrap/issues>

Overall: 205 292 installs
30 days: 12 506 installs
Today: 244 installs

dev-fix-14038 reference: b3d068f

2014-07-16 00:21 UTC
MIT

require: "twitter/bootstrap": "dev-fix-14038"

Authors

- Jacob Thornton <jacobthornton@gmail.com>
- Mark Otto <markdotto@gmail.com>

Requires None	Requires (Dev) None	Suggests None
Provides None	Conflicts None	Replaces <ul style="list-style-type: none">twitter/bootstrap: dev-fix-14038

dev-master / 3.2.x-dev reference: dd22f59

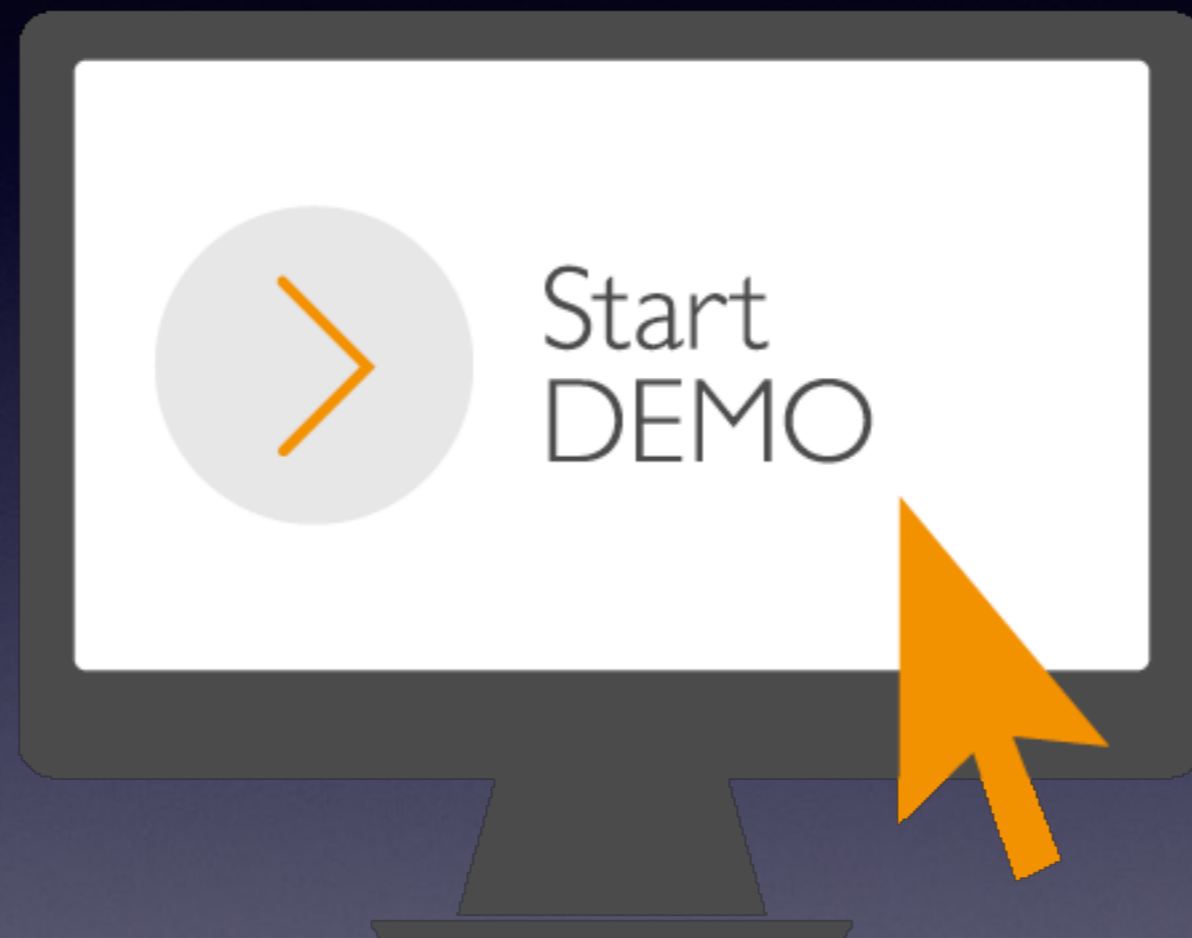
2014-07-15 18:09 UTC
MIT

dev-fix-14134 reference: 74691b7

2014-07-15 00:17 UTC
MIT

dev-grunt-concurrent reference: b7928c3

2014-07-13 07:38 UTC
MIT



Conclusion



Cargo

- ease description of dependencies
- dependencies as 1st class citizens
- central repository to find packages
- gives focus on projects for developers

Conclusion

- Work in-progress
 - inclusion of Cargo in Pharo 7 early stages
- Future
 - central repository update
 - evolutions from community feedback



Questions?

code and tutorials on
<https://github.com/demarey/cargo>

Why a central package repository ?

- dependencies should refer to versionned packages, not source code artifacts
(ex: *Versioner-Core-ChristopheDemarey.50*
=> *Versioner-Core v0.8*)
- ease discovery of Pharo librairies