

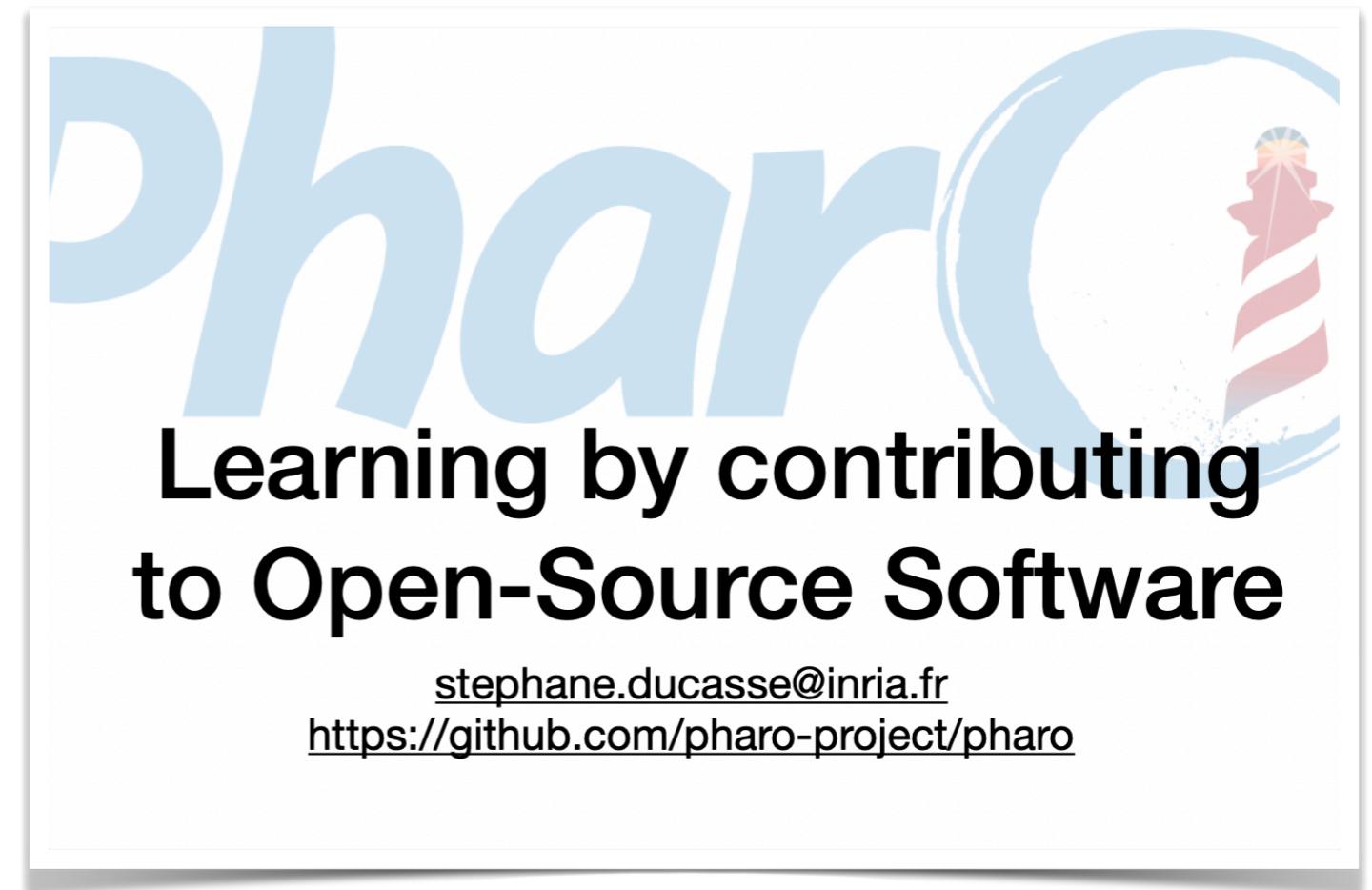
The Pharo logo watermark is a large, semi-transparent blue circle containing the word "pharo" in a white, lowercase, sans-serif font. To the right of the circle is a circular icon featuring a stylized lighthouse with red and white stripes, emitting light rays, set against a background of blue and white waves.

Contributing to Pharo: Easy, simple, fun and empowering

stephane.ducasse@inria.fr

<https://github.com/pharo-project/pharo>

Remember ...



**Learning by contributing
to Open-Source Software**

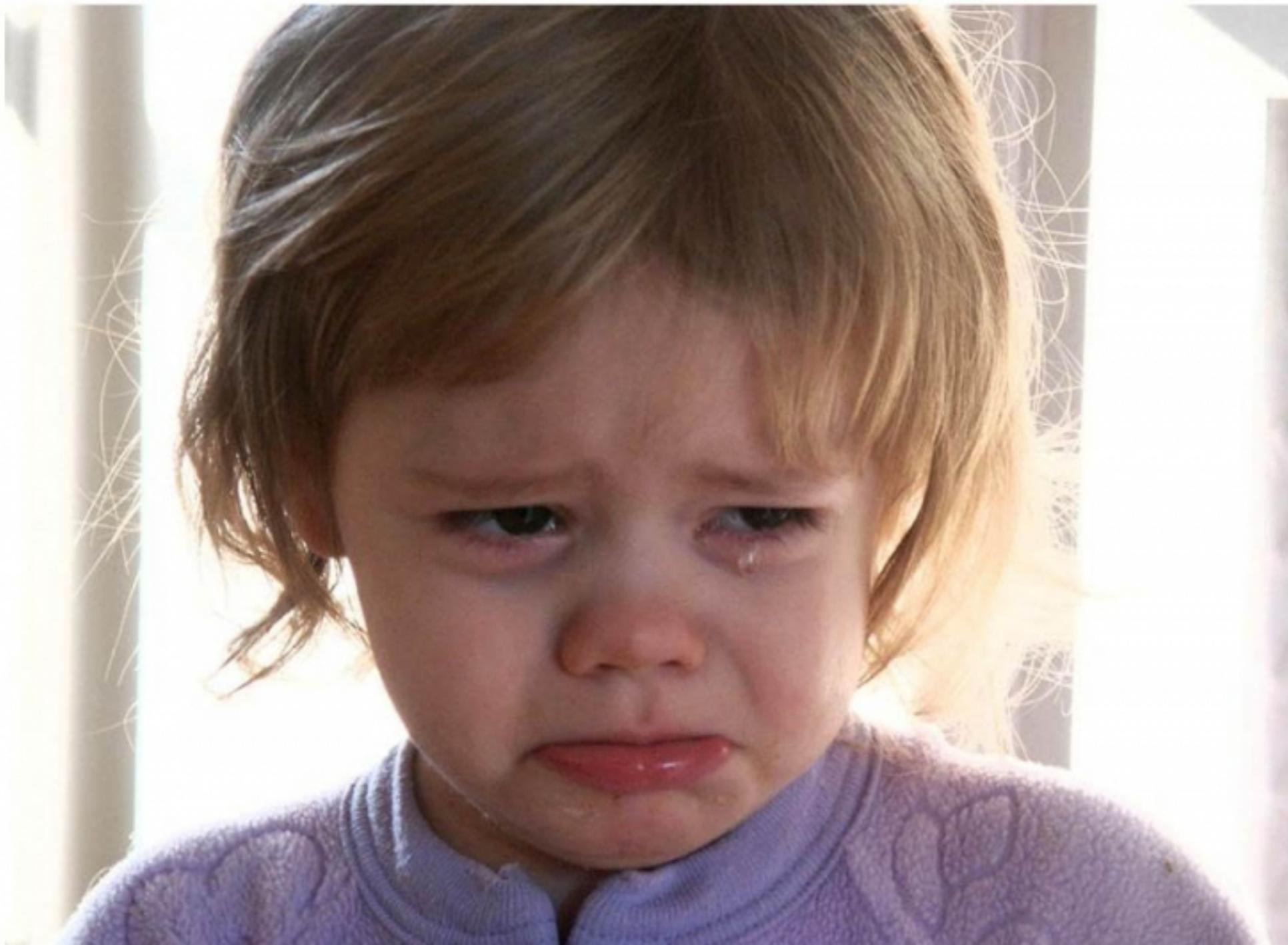
stephane.ducasse@inria.fr
<https://github.com/pharo-project/pharo>

**How to practice
software skills?**

How to practice software skills?

- Program (but how to get feedback) code reviews are precious but difficult to get
- Code katas (always fun)
- Participate to sprints - pair program
- **Participate to open-source**

But I'm a noob



A blurred, motion-filled image of a city street, likely Times Square in New York City, with bright lights, billboards, and people walking.

**And the world is
complex**

Wait wait wait...

We are all noobs!



**The solution is just
some clicks away...**

**Take *any* opportunity
to read code**

**Take *any* opportunity
to contribute**

A PIECE OF CAKE

Contributing is easy &
simple

Possible contributions

- **Read/answer newbie questions**
- **Participate to the wiki**
- **Review bug entry description**
- **Review bug fixes**
- **Write tests for bug entries**
- **Improve test coverage**
- **Improve comments**

**Take *any* opportunity
to contribute**

Contribute to Code

- Set up your own Pharo fork/Image
- Create a branch
- Improve Pharo
- Commit
- PR

Step: Fork the pharo repo



Search or jump to...

Pull requests Issues Marketplace Explore



pharo-project / pharo

Public

Sponsor

Edit Pins

Unwatch 42

Fork 285

Starred 906

Code

Issues 914

Pull requests 19

Discussions

Actions

Wiki

Security

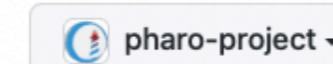
Insights

Settings

Create a new fork

A *fork* is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project. [View existing forks](#).

Owner *



Repository name *

pharo-1



By default, forks are named the same as their parent repository. You can customize the name to distinguish it further.

Description (optional)

Pharo is a dynamic reflective pure object-oriented language supporting live programming inspired by Smalltalk

 Copy the Pharo11 branch onlyContribute back to pharo-project/pharo by adding your own branch. [Learn more](#).

You are creating a fork in the pharo-project organization.

[Create fork](#)



Search or jump to...



Pull requests Issues Marketplace Explore

Ducasse / pharo

Public

forked from [pharo-project/pharo](#)

Unpin

Watch 1

Code

Pull requests

Actions

Projects

Wiki

Security

Insights

Settings

Pharo11 ▾

7 branches

352 tags

Go to file

Add file ▾

Code ▾

Your Pharo11 branch isn't protected

Protect this branch from force pushing, deletion, or require status checks before merging.



[Protect this branch](#)

[Dismiss](#)

This branch is [16 commits behind](#) pharo-project:Pharo11.

Contribute ▾

Sync fork ▾

Ducasse Delete .bintray.json ...

d1c64b7 4 days ago 18,442 commits

.github

Update bug-report.md

17 months ago

bootstrap

Replace calls to #'theNonMetaClass' with #'instanceSide' (fix [pharo-](#)...)

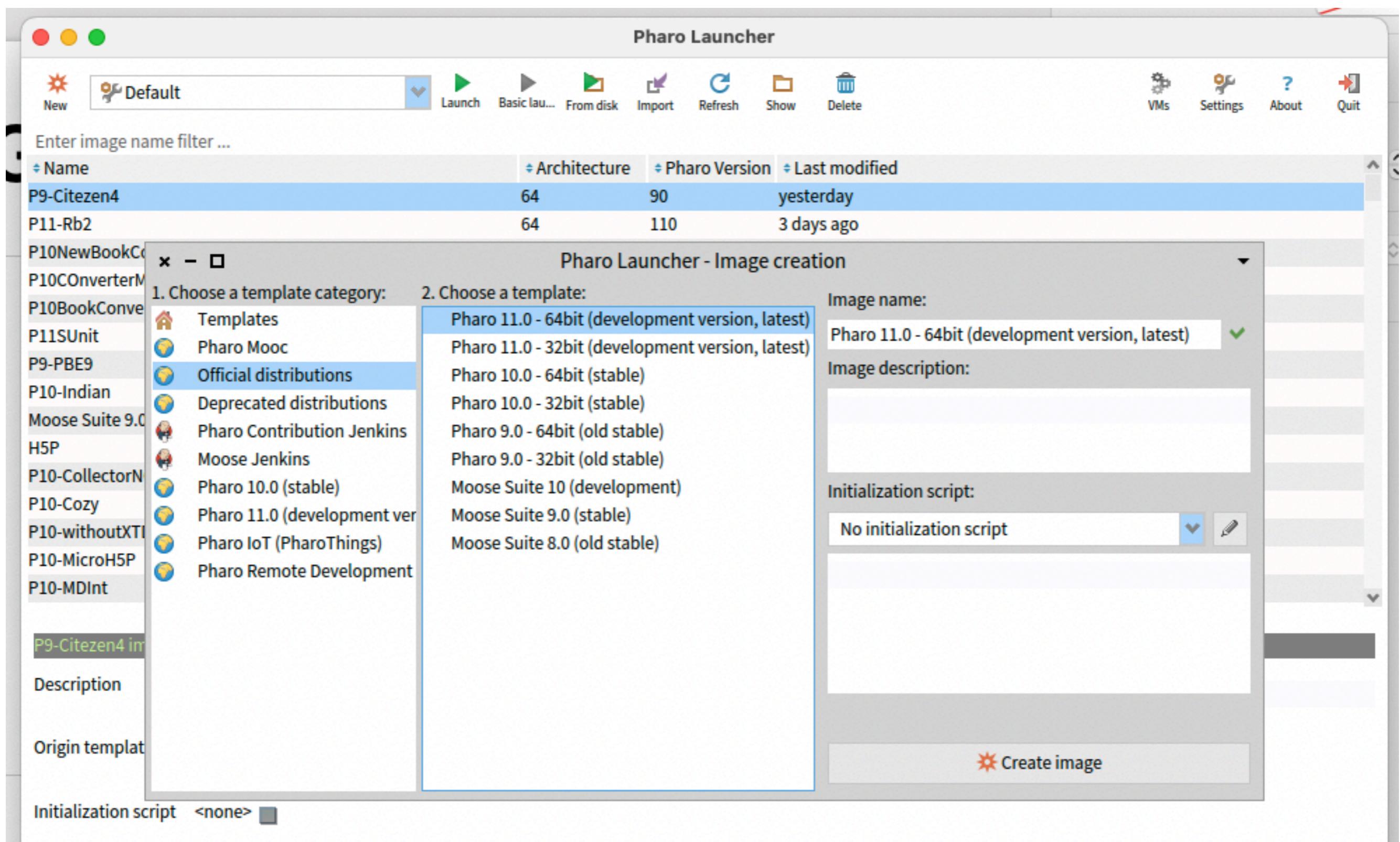
last month

doc

fixing the pattern examples

4 days ago

Step: Grab latest image



Pharo Launcher

New  Launch  Basic lau...  From disk  Import  Refresh  Show  Delete 

VMs  Settings  ?  Quit 

App

Name	Architecture	Pharo Version	Last modified
P11-HappyContributing	64	110	just now

No image selected image, last edited N/A

Description <no description given>

Origin template (noname)

Initialization script <none> 

Location

Welcome

Pharo11.0.0

build: 158, commit: 55d062a, date: 17 August 2022



- Welcome to Pharo11.0.0
- Changes in Pharo 10
- Learn Pharo
- Explore the Pharo Environment
- More Documentation
- Getting Help

Repositories



Fetch all

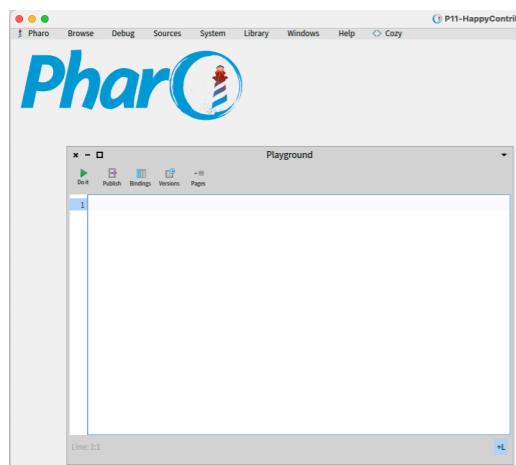
Settings

Add

Repositories	Status	Branch
pharo	Local repository missing	Unknown
Spec2	Local repository missing	Unknown
NewTools	Local repository missing	Unknown
Roassal3	Local repository missing	Unknown
Microdown	Local repository missing	Unknown
BeautifulComments	Local repository missing	Unknown
iceberg	Local repository missing	Unknown
libgit2-pharo-bindings	Local repository missing	Unknown
tonel	Local repository missing	Unknown

Situation

- The image has code too
- The local and remote repo can be desynchronized
- The image and local repo can be desynchronized

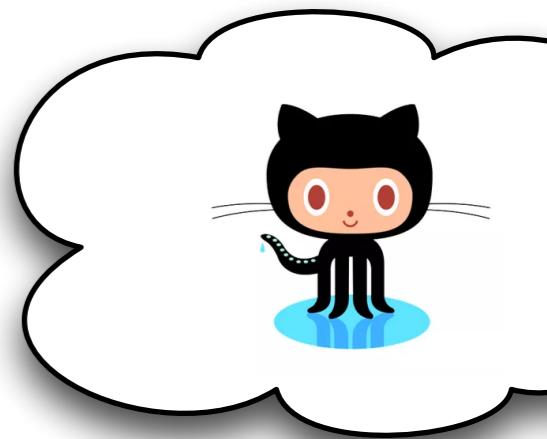


image



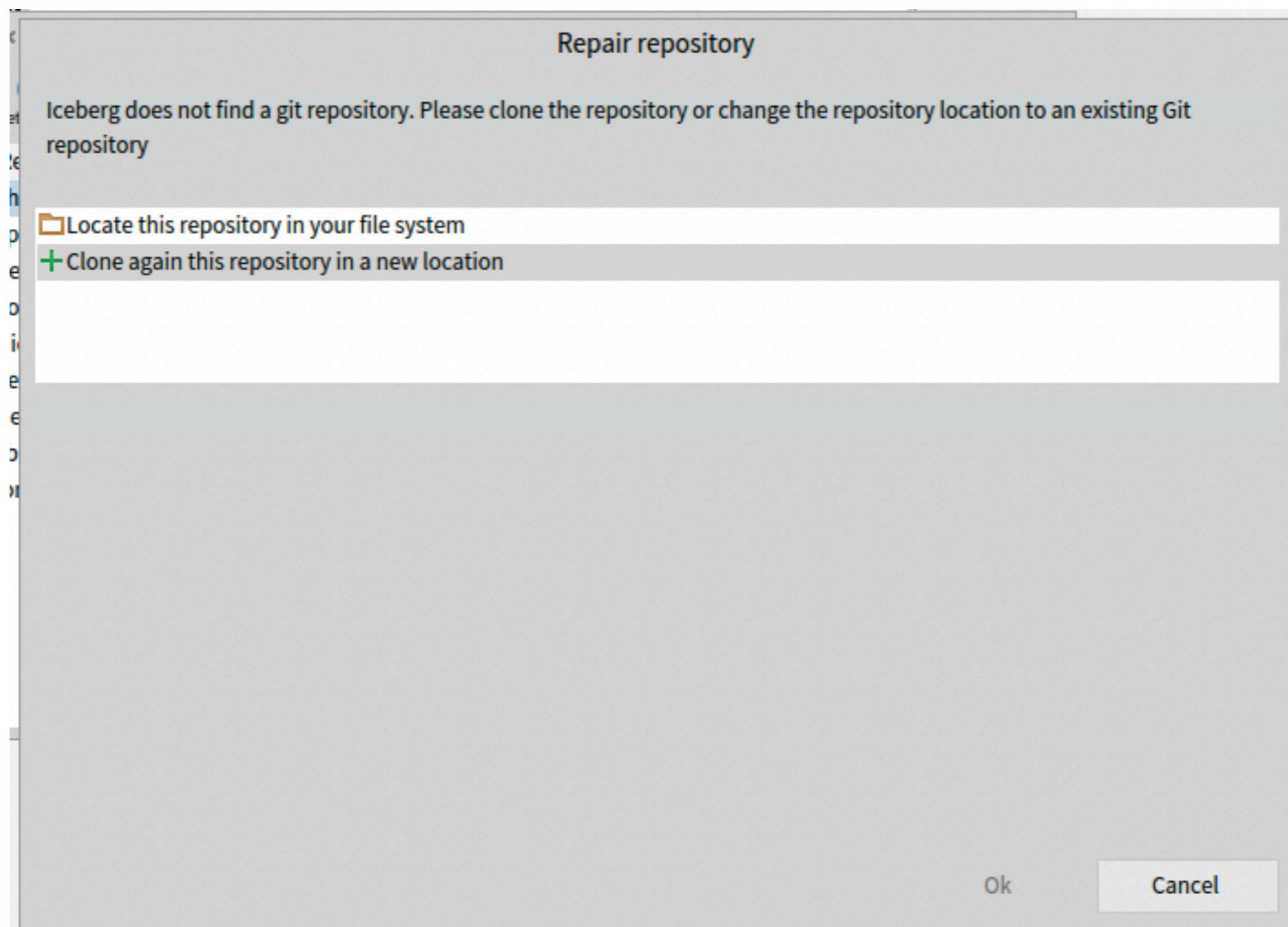
local repository

git working copy



remote repository

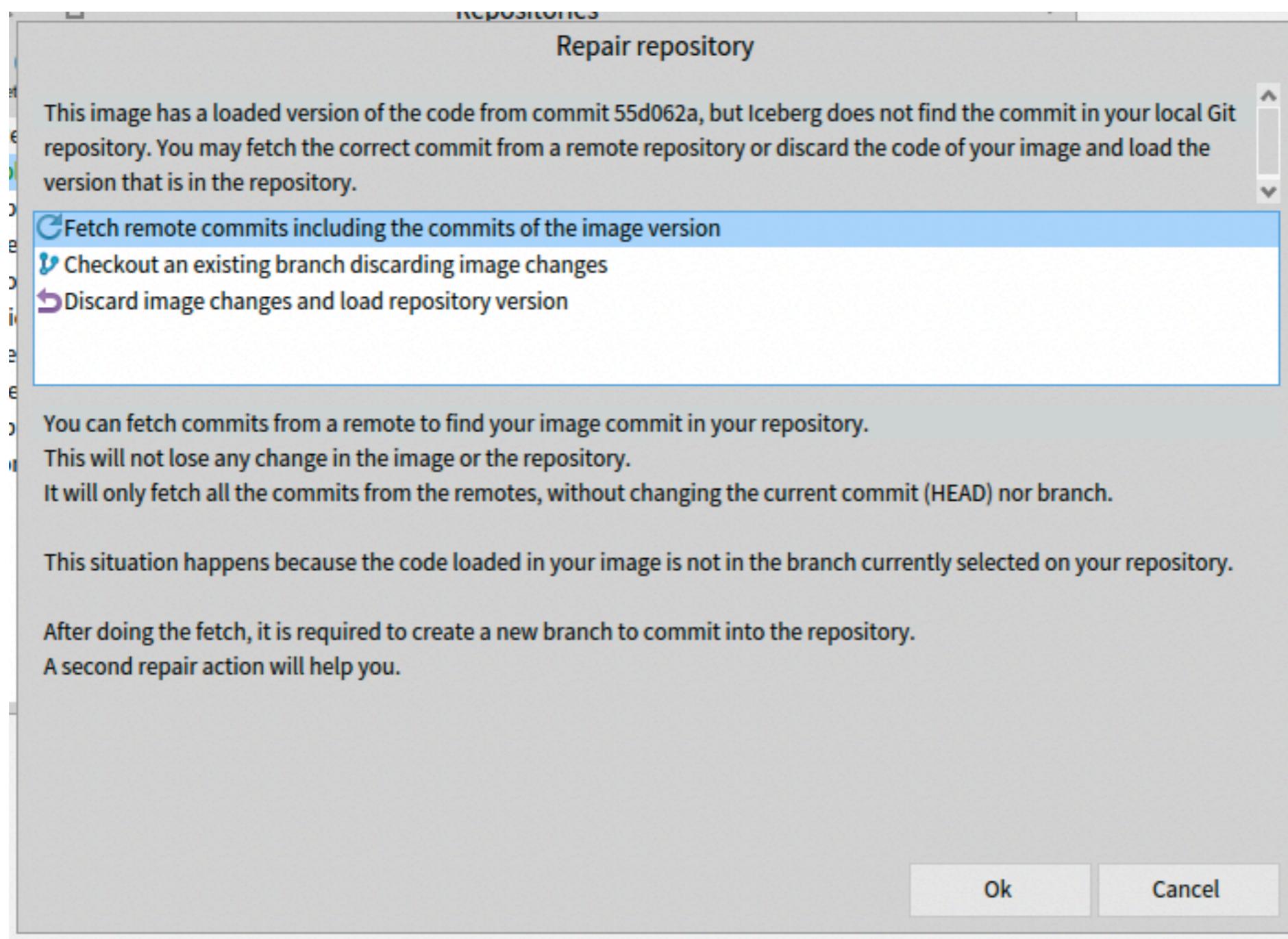
Step: Repair



Step: Repair

Now your Pharo image knows where is the code repo

if fetch required, fetch



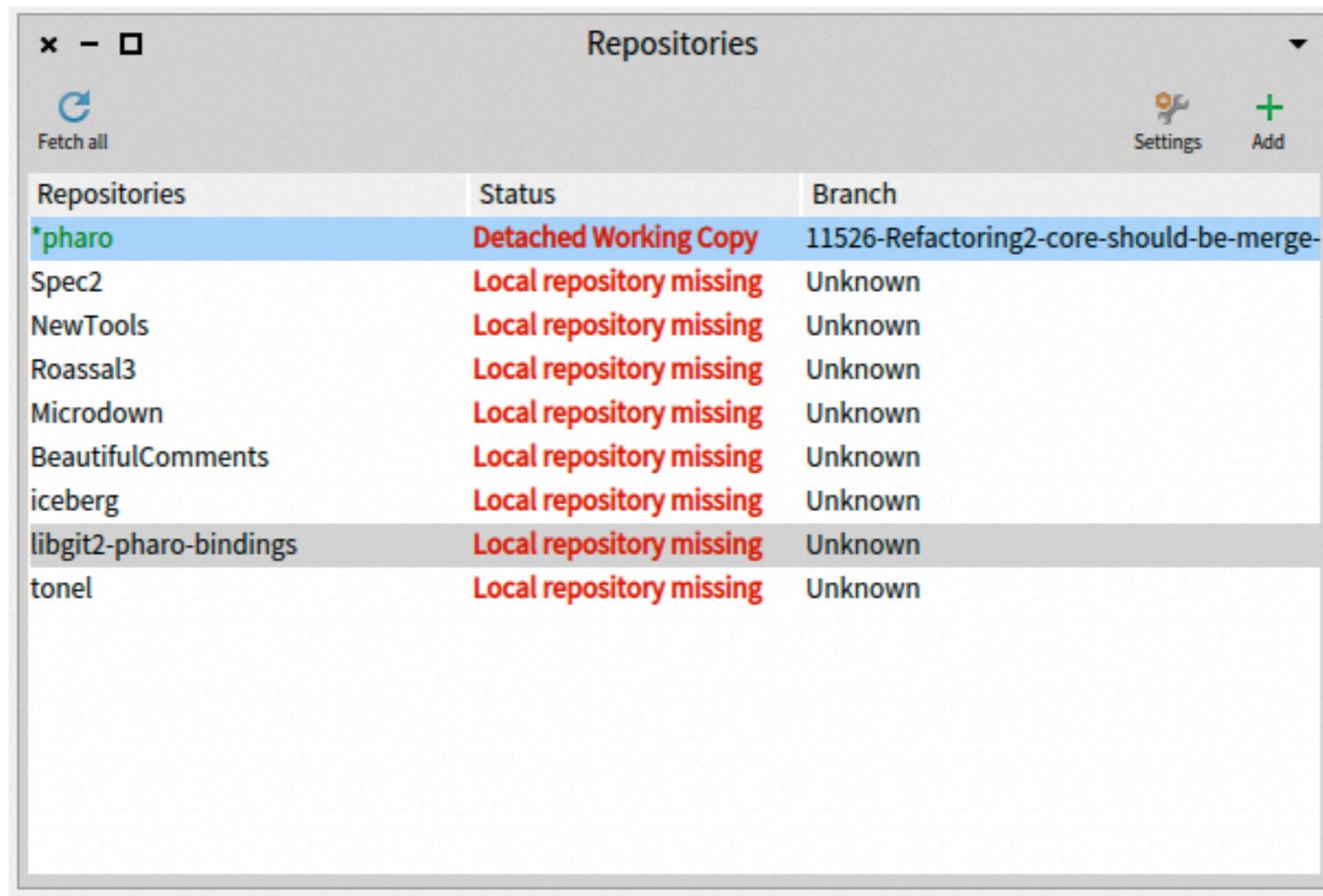
Remember

Iceberg actions are sorted from more likelihood to less likelihood

Now

Now your local get the latest changes (according to the image) from Pharo

Detached Working Copy

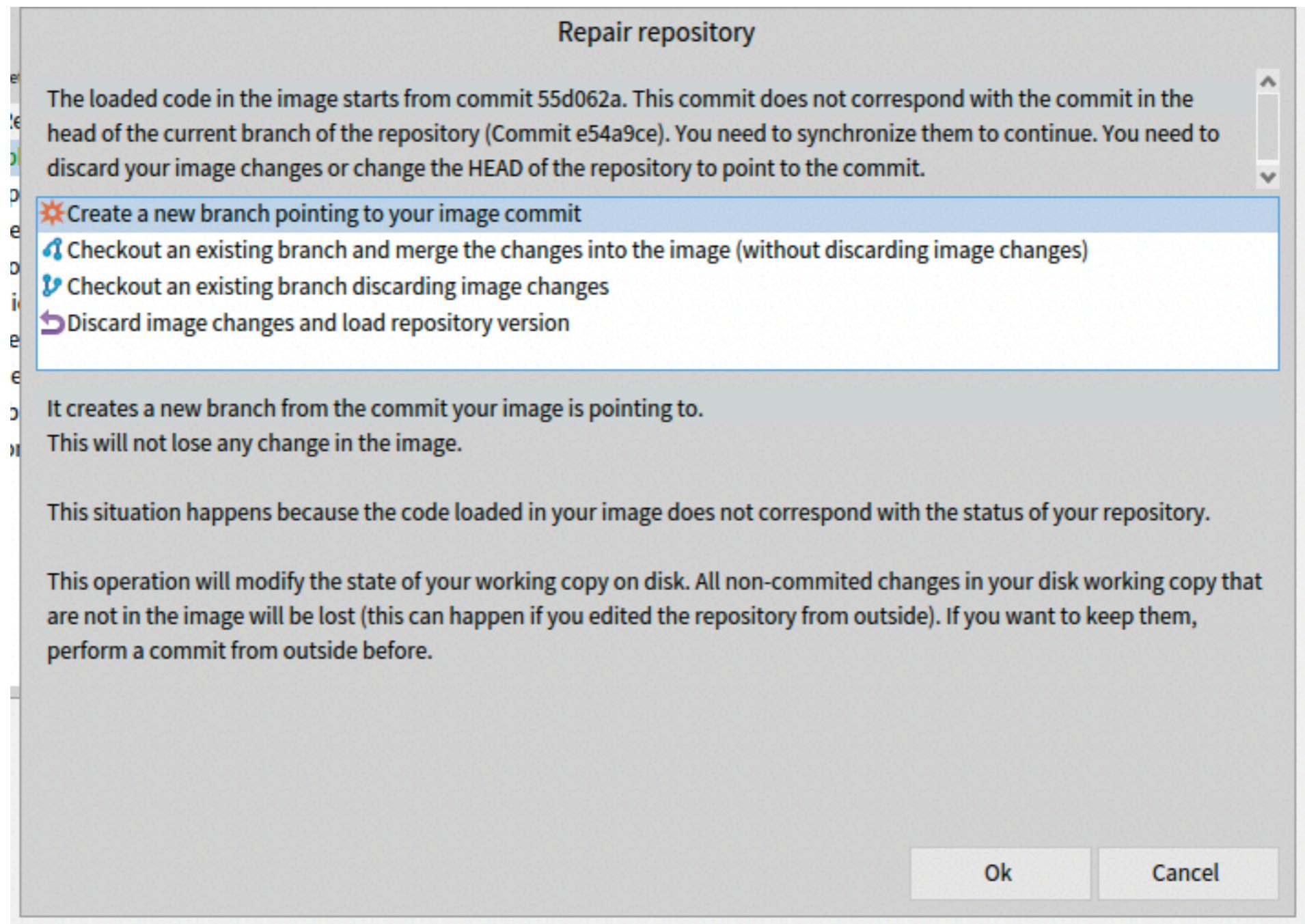


Repositories	Status	Branch
*pharo	Detached Working Copy	11526-Refactoring2-core-should-be-merge-
Spec2	Local repository missing	Unknown
NewTools	Local repository missing	Unknown
Roassal3	Local repository missing	Unknown
Microdown	Local repository missing	Unknown
BeautifulComments	Local repository missing	Unknown
iceberg	Local repository missing	Unknown
libgit2-pharo-bindings	Local repository missing	Unknown
tonel	Local repository missing	Unknown

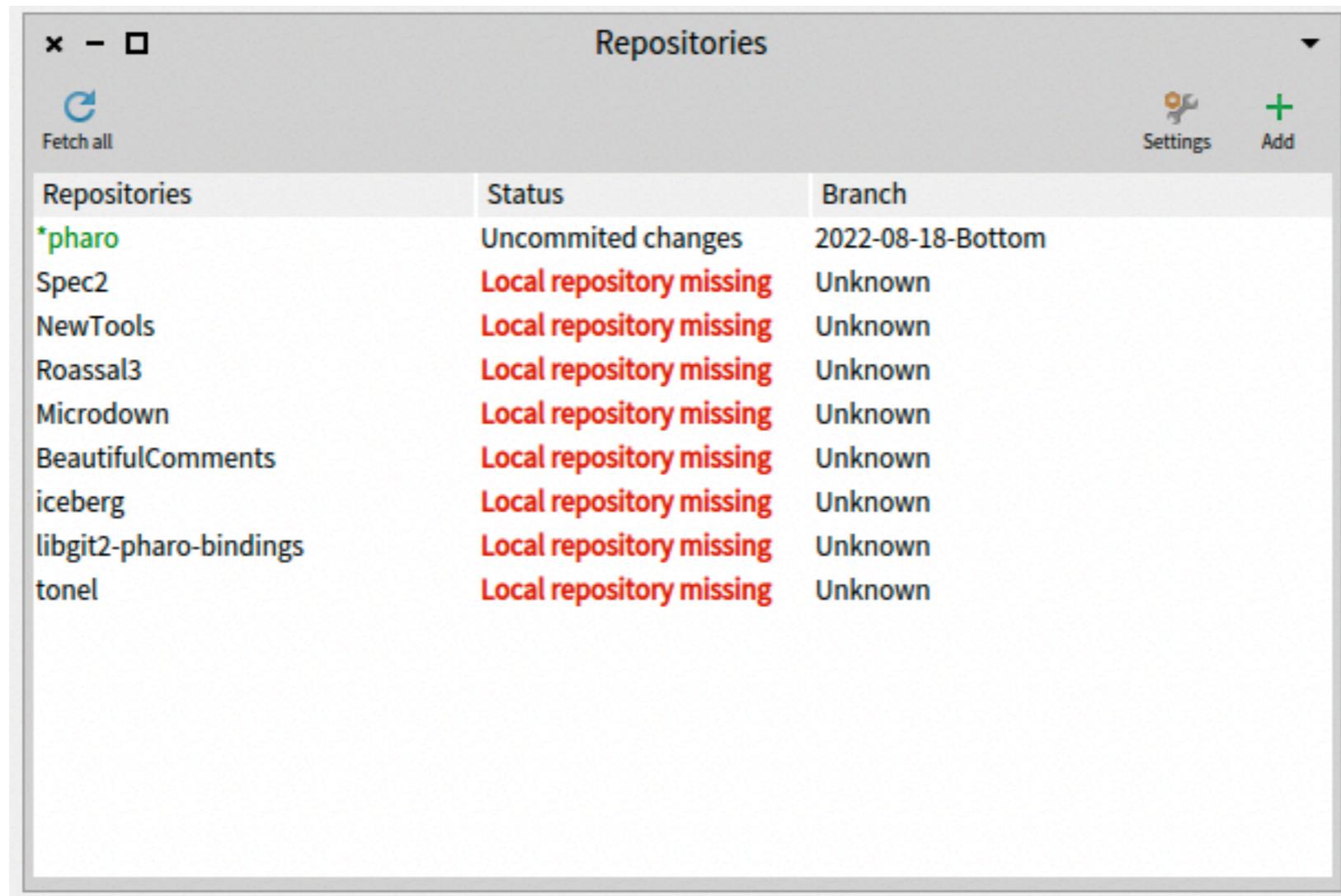
Repair

Now it will create a branch pointing to the state of your image

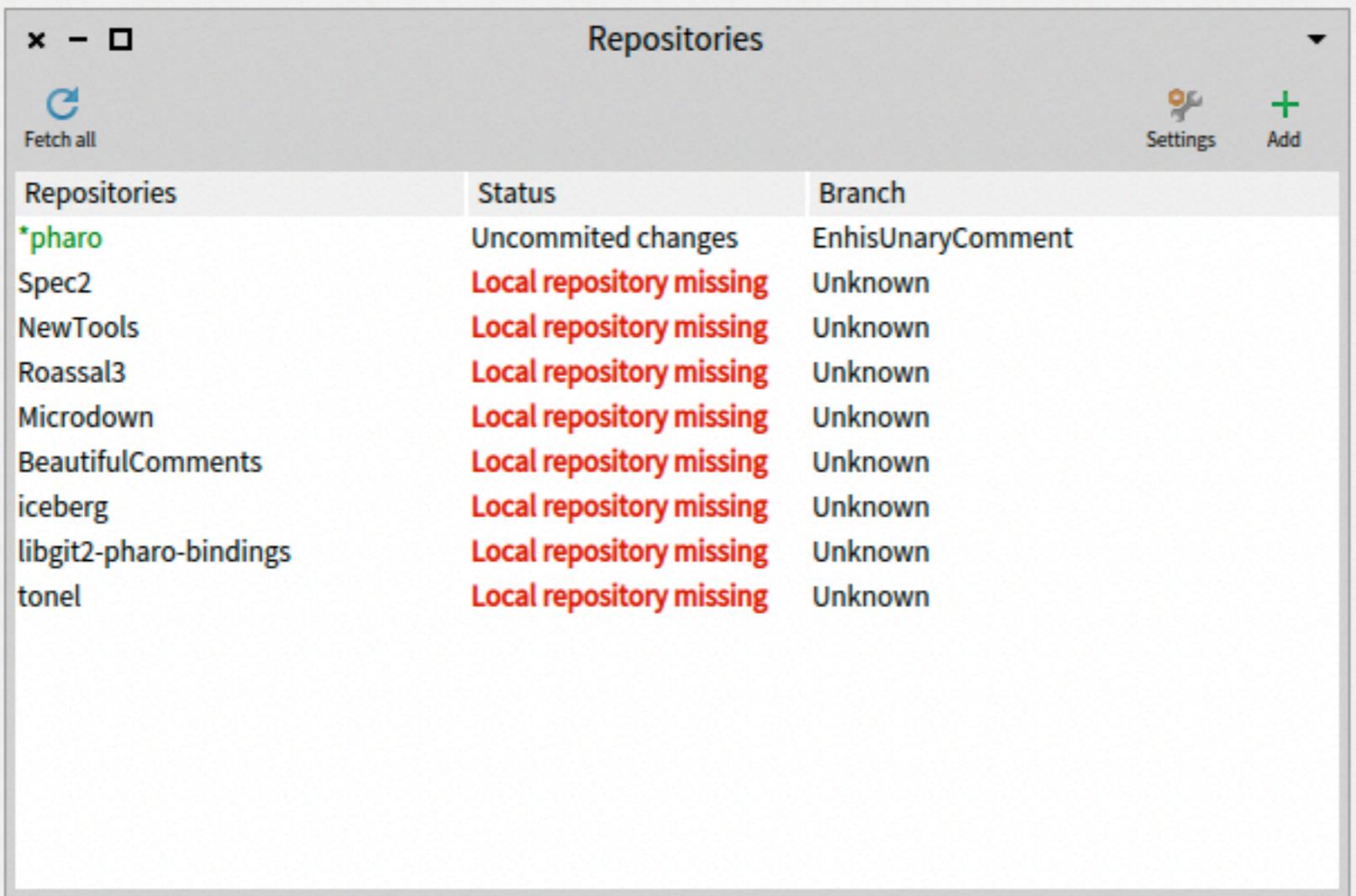
Create a “bottom” branch



This way you can always come back “here”



Step: Create a Branch for your fix



The screenshot shows a software window titled "Repositories". At the top left is a "Fetch all" button with a circular arrow icon. On the right are "Settings" and "Add" buttons. The main area is a table with three columns: "Repositories", "Status", and "Branch". The "Repositories" column lists several projects: "*pharo", "Spec2", "NewTools", "Roassal3", "Microdown", "BeautifulComments", "iceberg", "libgit2-pharo-bindings", and "tonel". The "Status" column contains mostly red text indicating issues: "Uncommitted changes" for *pharo, and "Local repository missing" for the others. The "Branch" column shows "EnhisUnaryComment" for *pharo and "Unknown" for the others.

Repositories	Status	Branch
*pharo	Uncommitted changes	EnhisUnaryComment
Spec2	Local repository missing	Unknown
NewTools	Local repository missing	Unknown
Roassal3	Local repository missing	Unknown
Microdown	Local repository missing	Unknown
BeautifulComments	Local repository missing	Unknown
iceberg	Local repository missing	Unknown
libgit2-pharo-bindings	Local repository missing	Unknown
tonel	Local repository missing	Unknown

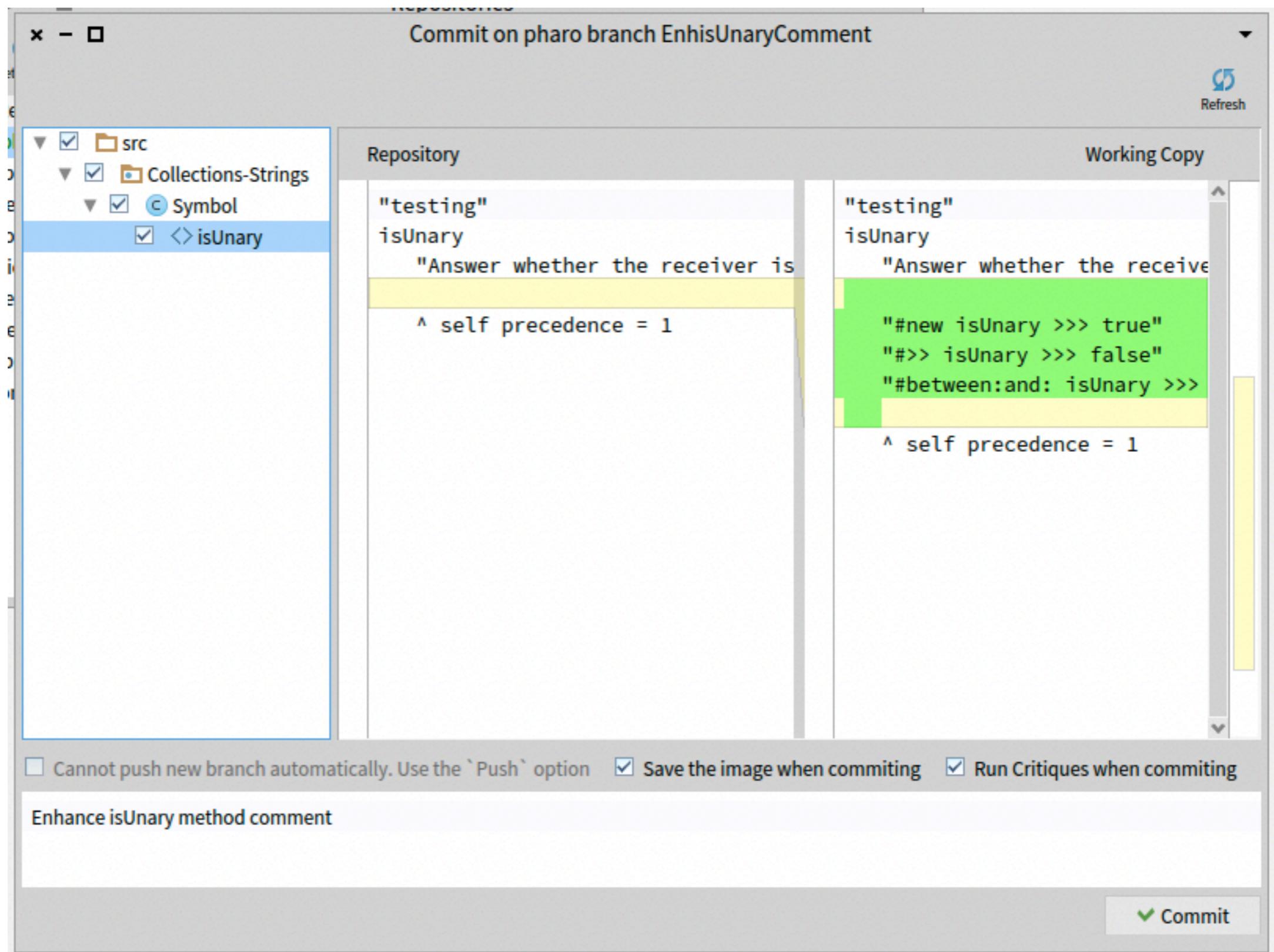
Step: Do your fix

The screenshot shows the Metacello UI with the title "Symbol>>isUnary". The left pane displays a package browser with several categories like Collections-Arithmetic, Collections-Atomic, etc., and a selected category "Collections-Strings". The center pane shows a class hierarchy for "Symbol" with subclasses "ByteString", "WideSymbol", and "WideString". The right pane lists various methods for "Symbol" with annotations such as "should be implemented" and "private". Below the browser is a toolbar with tabs for Comment, Symbol, isUnary (which is selected), UML-Class, and Inst. side methc. The bottom pane contains the implementation of the "isUnary" method.

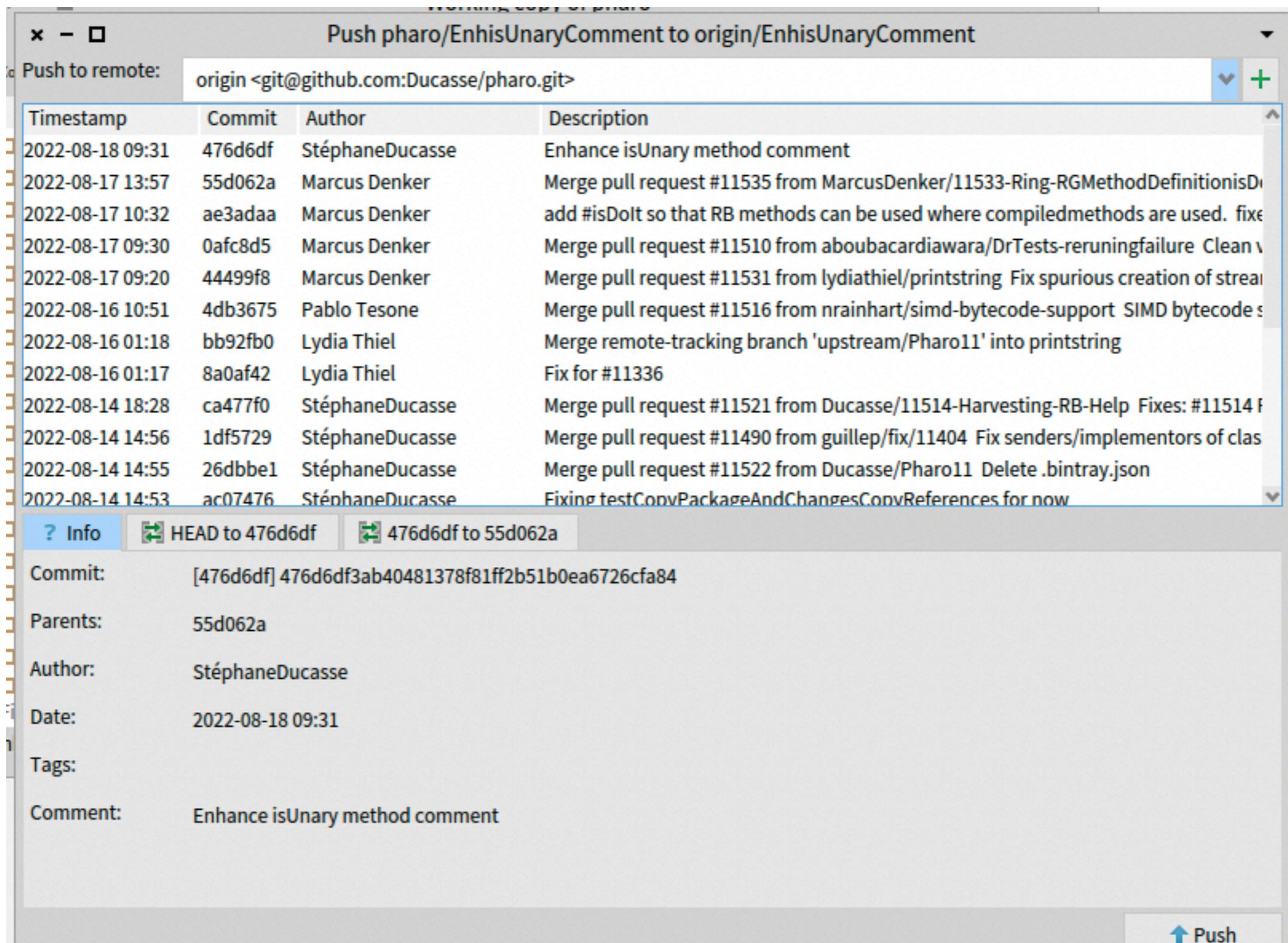
```
! isUnary
"Answer whether the receiver is an unary message selector."
#new isUnary >> true
#>> isUnary >> false
#between:and: isUnary >> false

^ self precedence = 1
```

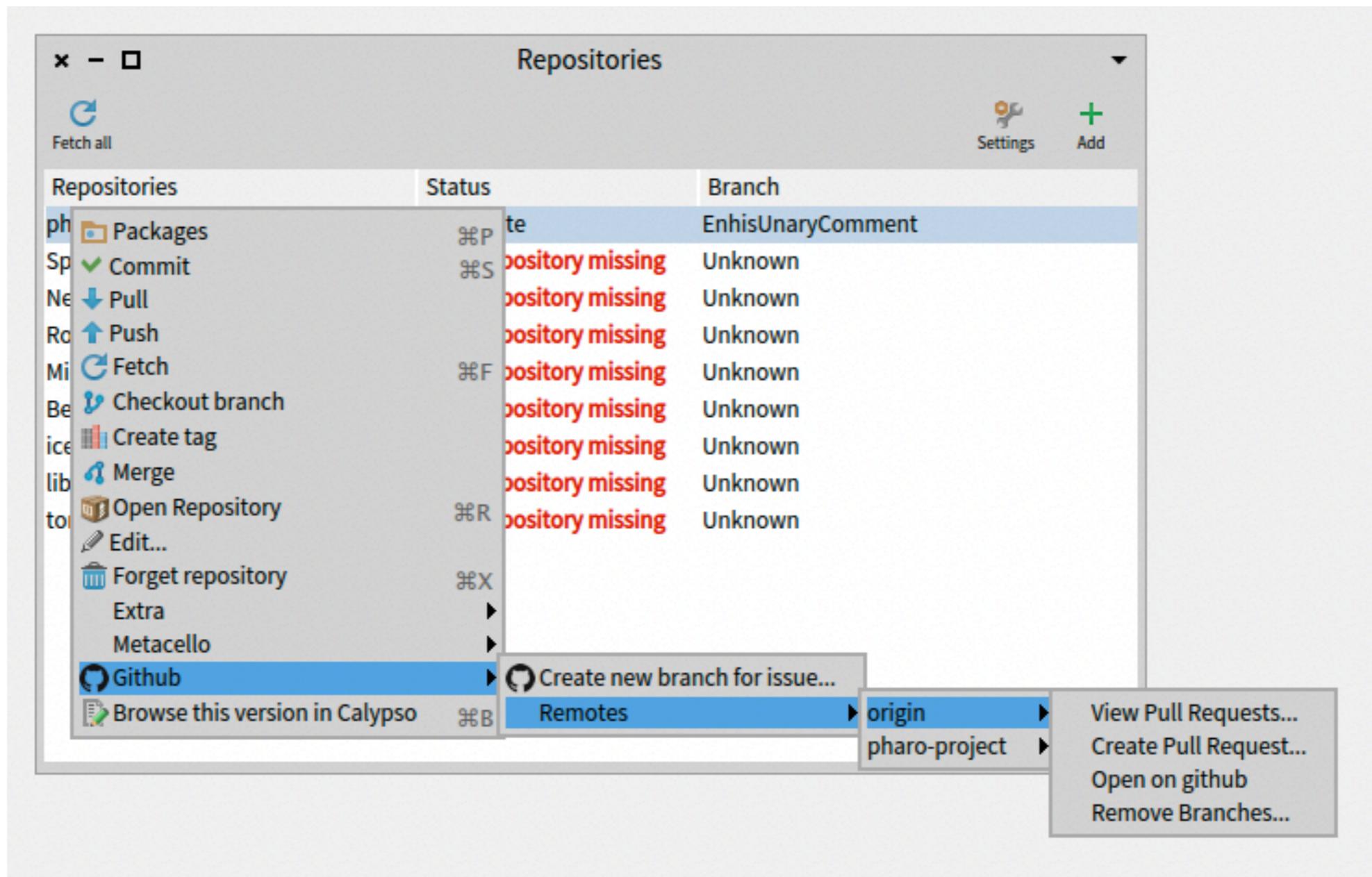
Step: commit to your fork



Step: Push to your fork



Step: Do a PR



Step: Do a PR

Screenshot of a GitHub repository page for 'Ducasse / pharo' (Public). The repository was forked from 'pharo-project/pharo'. The 'Code' tab is selected. A yellow banner at the top right shows a message from 'EnhisUnaryComment' about recent pushes and includes a 'Compare & pull request' button. Below the banner, there are buttons for 'Go to file', 'Add file', and 'Code'. A notification at the bottom left says 'Your Pharo11 branch isn't protected' and suggests protecting it or dismissing the message. To the right, there is a cartoon character of a purple cat-like figure holding a wrench.

Search or jump to... / Pull requests Issues Marketplace Explore

Ducasse / pharo Public

forked from pharo-project/pharo

Unpin Watch 1

Code Pull requests Actions Projects Wiki Security Insights Settings

EnhisUnaryComment had recent pushes less than a minute ago Compare & pull request

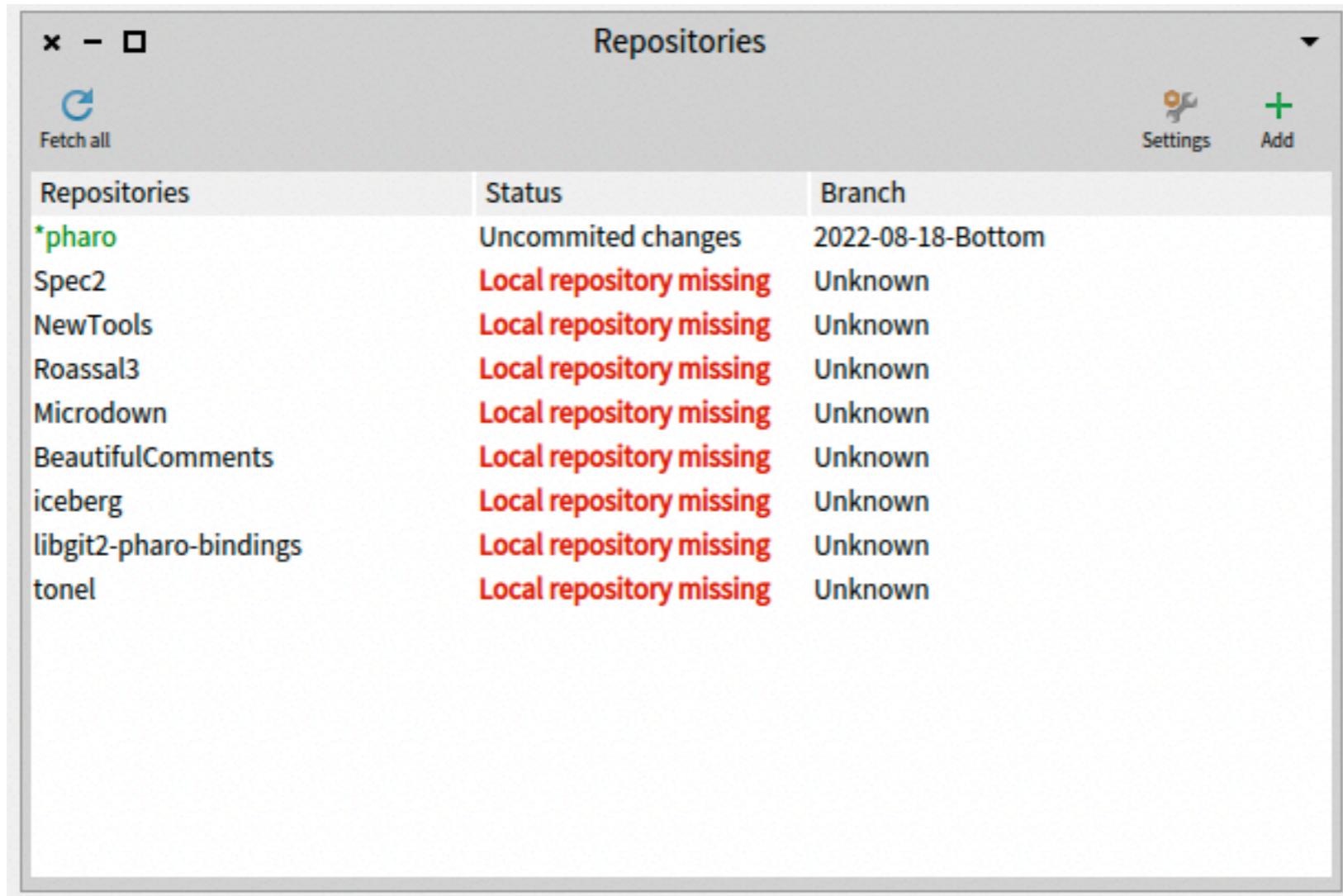
Pharo11 7 branches 352 tags Go to file Add file Code

Your Pharo11 branch isn't protected
Protect this branch Dismiss



Step: Check out your “bottom” branch

- And now you can fix another one :)



The screenshot shows a window titled "Repositories". At the top left is a "Fetch all" button with a circular arrow icon. On the right are "Settings" and "Add" buttons. The main area is a table with three columns: "Repositories", "Status", and "Branch". The "Repositories" column lists several items: "*pharo", "Spec2", "NewTools", "Roassal3", "Microdown", "BeautifulComments", "iceberg", "libgit2-pharo-bindings", and "tonel". The "Status" column contains mostly red text, indicating issues: "Uncommitted changes" for *pharo, and "Local repository missing" for the others. The "Branch" column shows either "2022-08-18-Bottom" for *pharo or "Unknown" for the others.

Repositories	Status	Branch
*pharo	Uncommitted changes	2022-08-18-Bottom
Spec2	Local repository missing	Unknown
NewTools	Local repository missing	Unknown
Roassal3	Local repository missing	Unknown
Microdown	Local repository missing	Unknown
BeautifulComments	Local repository missing	Unknown
iceberg	Local repository missing	Unknown
libgit2-pharo-bindings	Local repository missing	Unknown
tonel	Local repository missing	Unknown

No need to refork or sync your repo

- Do not care if your fork is not up to date
- When you will do the fetch, your local will be updated (from latest Pharo)
- When you will push to your remote, your local will send the latest Pharo change there

Contributing to Pharo is easy

- You will improve Pharo
- You will learn a lot
- You will meet friends
- You will build network

[Free side effect]



When you contribute to open-source you
improve [your](#) visibility

[Remember]

Every thing you do today has an impact
on your tomorrow!

[how did we meet
with Marcus D.?]

[we reviewed squeak
bug issues]

[then we created
Pharo :)]