smalltalkCI

A Continuous Integration Framework for Smalltalk Projects

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Our Motivation

SWE lectures

- Student teams work on a project in Squeak/Smalltalk

- Introduction to:
  - Version Control Management Systems
  - Continuous Integration

GitHub

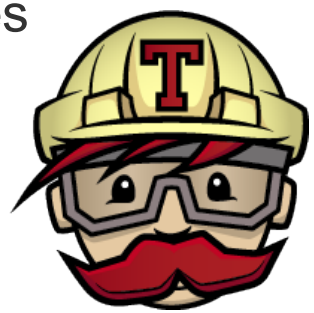
- Hosting platform for Git repositories
- Features
  - Issue tracking
  - Wiki
  - Markdown
  - Pull Requests and Forking
  - Integrations (e.g. Slack, Trello, ...)
  - …

GitHub

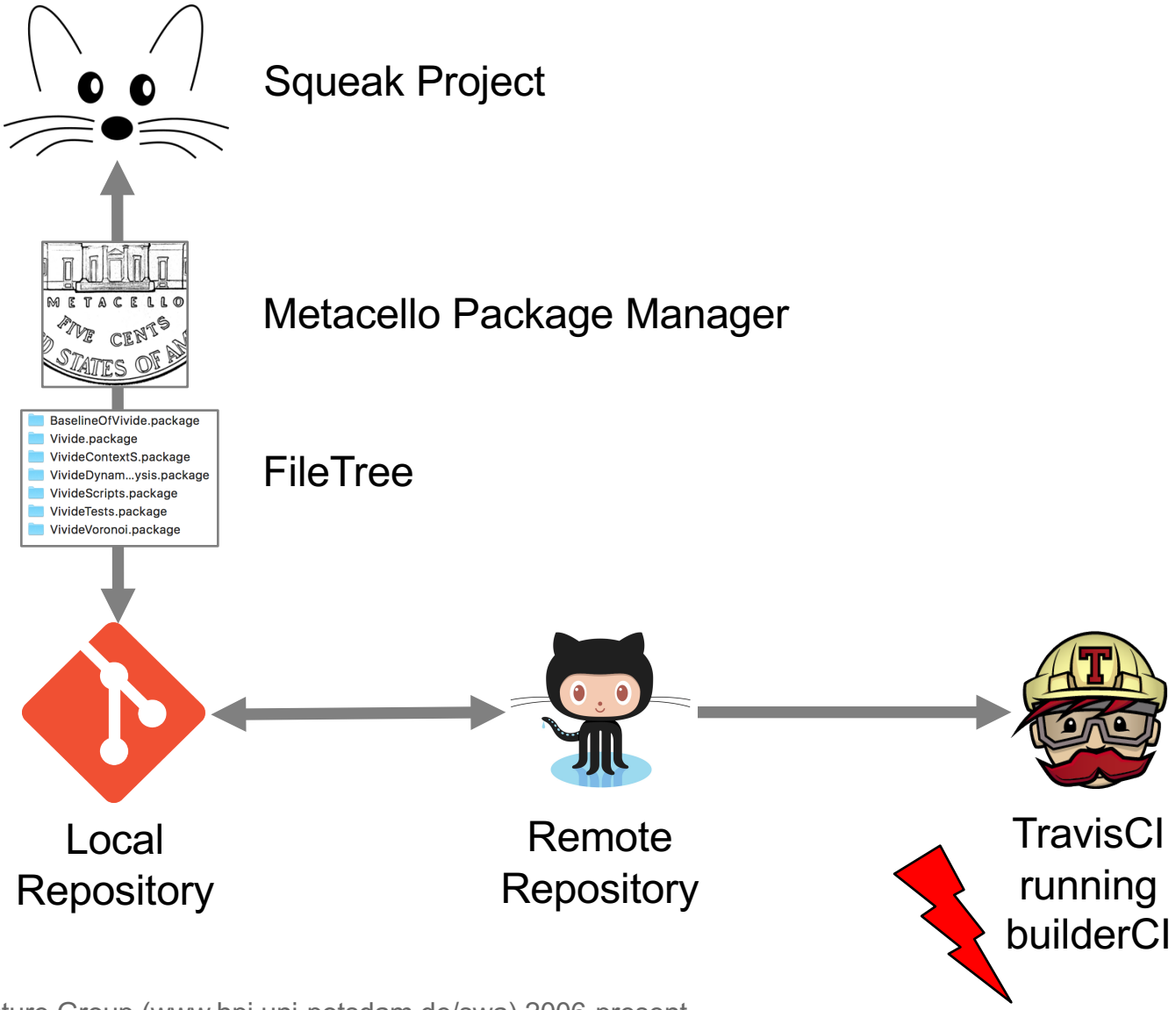
TravisCI

- Hosted, distributed continuous integration service for project hosted at GitHub

- Features
  - Builds project after each code push
  - Free for public repositories
  - Supports a broad range of programming languages (including Smalltalk) and build environments
  - Notifications via Email/Slack/IRC/Webhooks/…
  - Automatic deployment after successful builds
  - …



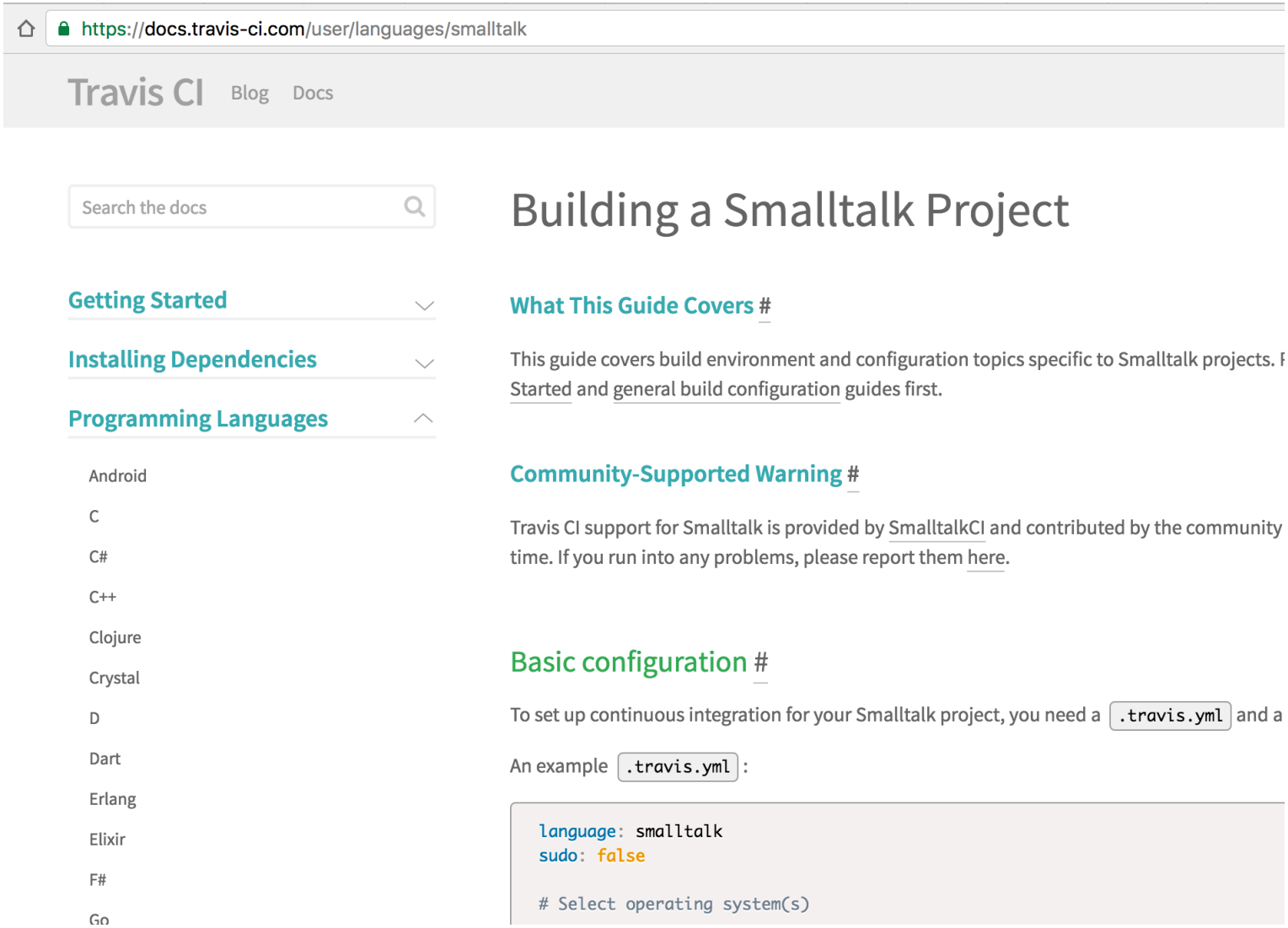
Toolchain For Students



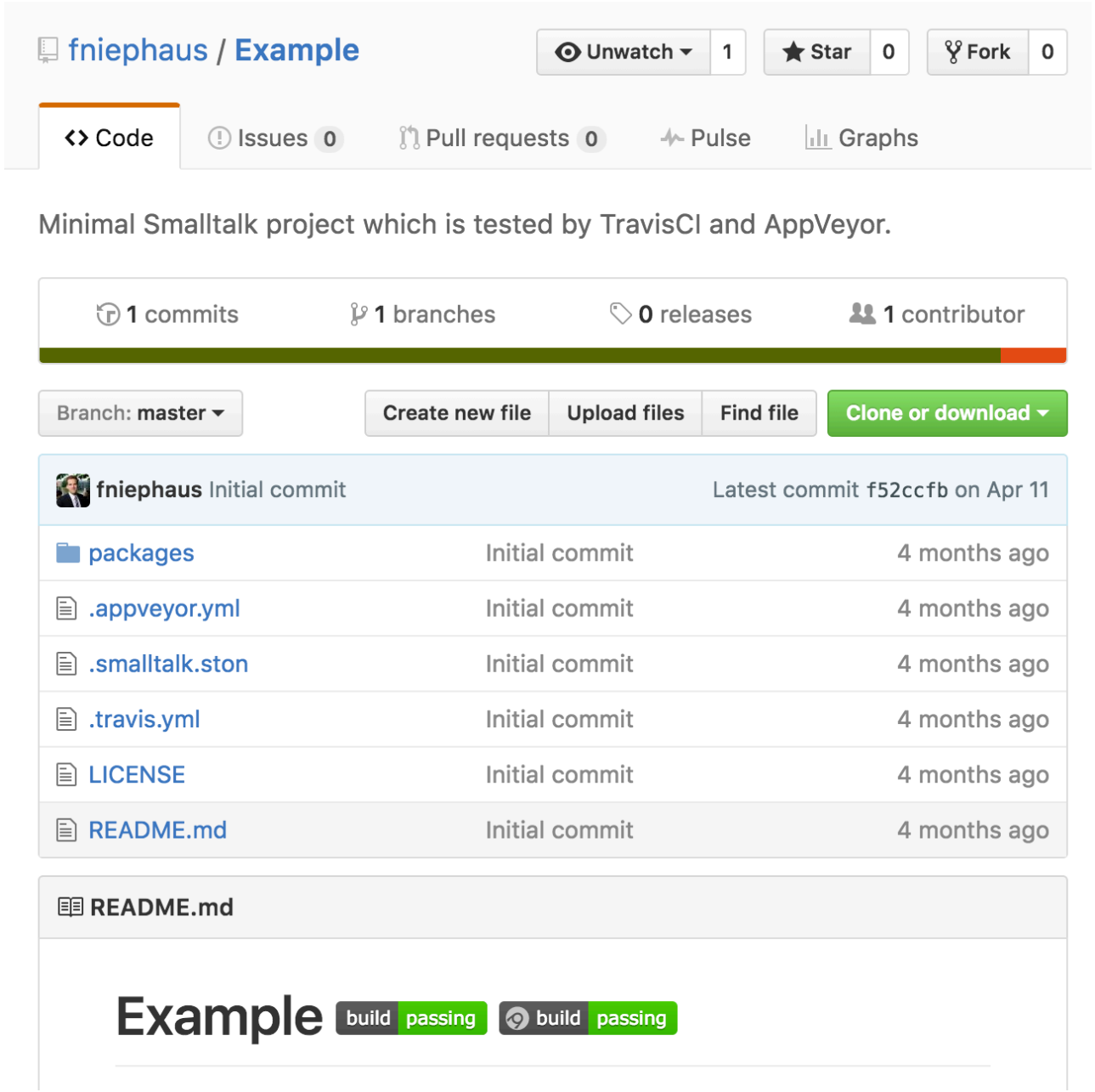
Some Design Goals And Decisions

- Compatible to different Smalltalk dialects
- Fast feedback loop
- Lightweight
  - Few dependencies
  - Small bootstrapping code base and total file size
- Reliable
  - Self-contained (minimum number of external resources)
  - Perform self-tests ("Eat your own dog food")
  - Dedicated config file (similar to `Gemfile` or `package.json`)
- Extensible
  - Easy to add features and support other dialects/environments
- Debuggable
  - Various debug options
  - Reproducible builds

Smalltalk Support on TravisCI



EXAMPLE PROJECT


fniephaus / Example
Unwatch 1
Star 0
Fork 0
Code
Issues 0
Pull requests 0
Pulse
Graphs
Minimal Smalltalk project which is tested by TravisCI and AppVeyor.
1 commits
1 branches
0 releases
1 contributor
Branch: master
Create new file
Upload files
Find file
Clone or download
fniephaus Initial commit
Latest commit f52ccfb on Apr 11
packages Initial commit 4 months ago
.appveyor.yml Initial commit 4 months ago
.smalltalk.ston Initial commit 4 months ago
.travis.yml Initial commit 4 months ago
LICENSE Initial commit 4 months ago
README.md Initial commit 4 months ago
README.md
Example
build passing
build passing

Example `.smalltalk.ston`

```
SmalltalkCISpec {
  #loading : [
    SCIMetacelloLoadSpec {
      #baseline : 'MyProject',
      #directory : 'packages',
      #platforms : [ #squeak, #pharo, #gemstone ]
    }
  ]
}
```

For full documentation, check out smalltalkCI’s `README.md`.

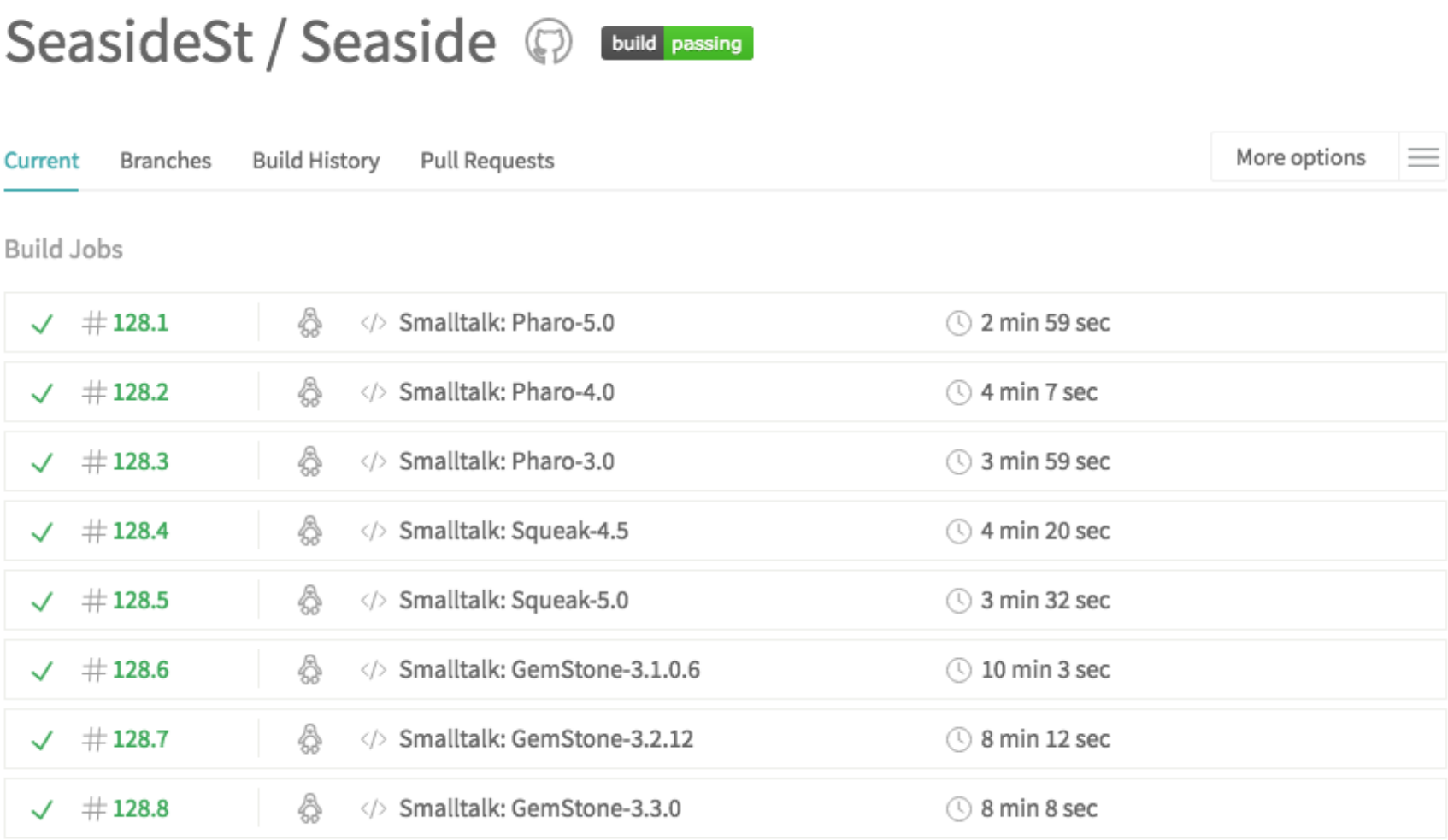
Example `.travis.yml`

```
language: smalltalk
sudo: false

os: # Select operating system(s)
  - linux
  - osx

smalltalk: # Select Smalltalk image(s)
  - Squeak-trunk
  - Squeak-5.0
  - Pharo-alpha
  - Pharo-5.0
  - GemStone-3.3.0
```

Seaside On TravisCI



Seaside On TravisCI

```
4893    ✓ testLastId (0.000 seconds)
4894    ✓ testMapTag (0.000 seconds)
4895    ✓ testMultiSelectTag (0.002 seconds)
4896    ✓ testNextId (0.000 seconds)
4897    ✓ testOrderedListTag (0.000 seconds)
4898    ✓ testParagraphTag (0.000 seconds)
4899    ✓ testPasswordInput (0.000 seconds)
4900    ✓ testScriptTag (0.000 seconds)
4901    ✓ testSelectTag (0.000 seconds)
4902    ✓ testSubmitButton (0.000 seconds)
4903    ✓ testSymbolRendering (0.000 seconds)
4904    ✓ testTable (0.002 seconds)
4905    ✓ testTableColumn (0.000 seconds)
4906    ✓ testTableColumnGroup (0.000 seconds)
4907    ✓ testTableData (0.000 seconds)
4908    ✓ testTableFull (0.000 seconds)
4909    ✓ testTableHeading (0.000 seconds)
4910    ✓ testTextArea (0.000 seconds)
4911    ✓ testTextInput (0.000 seconds)
4912    ✓ testUnorderedListTag (0.000 seconds)
4913
4914      Executed 1378 tests, with 0 failures and 0 errors in 20.452 seconds.
4915
```

Build Failure Example

```
417 ################################################################################
418 # SmalltalkCI: 6 Tests, 3 Failures, 1 Errors in 0.021s
419 ################################################################################
420
421 SmalltalkCI.Excluded.Tests.SCIExcludedTests
422   ✗ testAssertError (0.009 seconds)
423 TestFailure: Got 3 instead of 4.
424 SCIExcludedTests(TestAsserter)>>assert:description:
425 SCIExcludedTests(TestAsserter)>>assert:equals:
426 SCIExcludedTests>>testAssertError
427 SCIExcludedTests(TestCase)>>performTest
428
429   ✗ testError (0.003 seconds)
435   ✗ testFailure (0.006 seconds)
442   ✓ testShouldFail (0.000 seconds)
443   ✓ testShouldPass (0.000 seconds)
444   ✗ testShouldPassUnexpectedly (0.000 seconds)
447
448     Executed 6 tests, with 3 failures and 1 errors in 0.021 seconds.
474
475
476     To reproduce the failed build locally, download smalltalkCI
477     and try to run something like:
478
479      /path/to/run.sh --headfull /path/to/project/.smalltalk.ston
480
```

Projects Using smalltalkCI

In alphabetical order:

- @Cormas: Cormas.
- @dalehenrich: obex, tode.
- @dynacase: borm-editor, borm-model, borm-persistence, class-editor, demo-editor, dynacase, dynacase-model, fsm-editor.
- @HPI-BP2015H: squeak-parable.
- @HPI-SWA-Teaching: Algernon-Launcher.
- @hpi-swa: animations, Ohm-S, vivide.
- @marianopeck: OSSubprocess, FFICHeaderExtractor.
- @pharo-project: pharo-project-proposals.
- @PolyMathOrg: PolyMath.
- @SeasideSt: Grease, Parasol, Seaside.
- @SergeStinckwich: PlayerST.
- @theseion: Fuel.
- @Uko: GitHubcello, QualityAssistant, Renraku.
- @UMMISCO: Kendrick.
- @zecke: osmo-smsc.
- More Projects...

Feel free to send a PR to add your Smalltalk project to the list.

FUTURE WORK

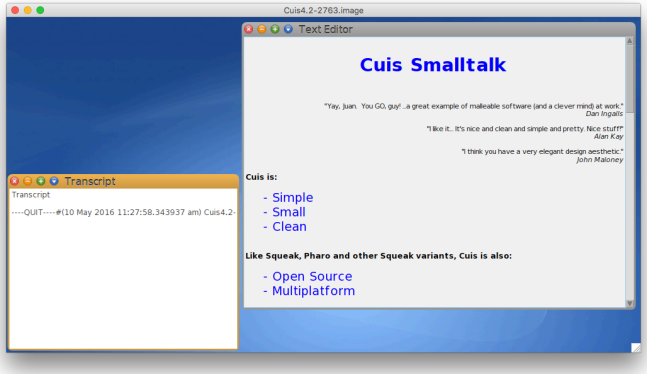
Try Out More CI Services

GitLab CI

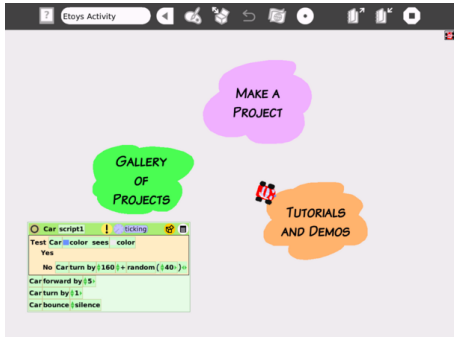
...

Add More Smalltalk Images

Moose



Cuis



Etoys

■ ■ ■

Support for Different VMs

OpenSmalltalkVM
(e.g. latest + stable)

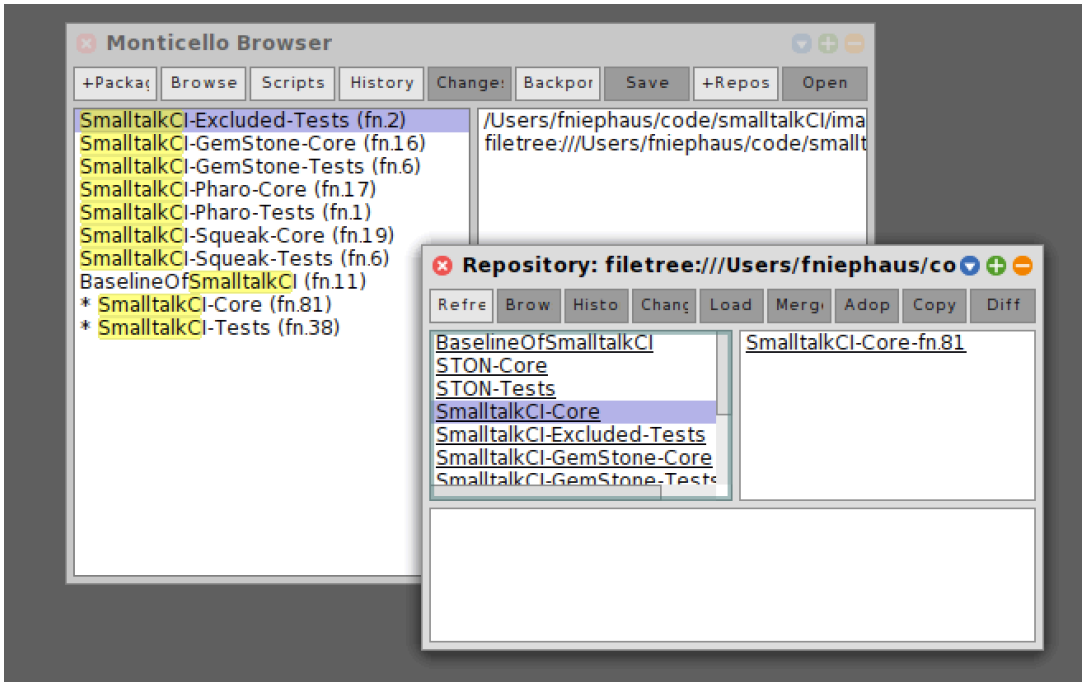
SqueakJS

RSqueak/VM

...

Improve Tooling For Git

- Get rid of two-commit workflow
- Use metadata-less FileTree by default



Simplify First Steps

- Uniform way to load projects from GitHub
- One-click tryout in browser via SqueakJS

README.md

Fuel

Conclusion

smalltalkCI…

- makes it easy to CI test Smalltalk projects
- enables easy access to free CI services
- runs locally and provides various debugging options
- is already used by more than 100 projects on GitHub

Questions? Ideas?

Contribute!