Pharo 9 Status

Consortium Meeting

10 December 2020

Original Roadmap

- Headless VM
- FFI improvements
- Spec 2: Morphic & GTK Backend
- Sista Bytecodes w/ Full Block Closures
- Memory Management Configuration
- Integration with Windows
- Tools migration (with improvements)
  - Debugger
  - Inspector
  - Playground
- Clean-ups / Bugfixes / Improvements

VM Status (Done Sept 2020)

Headless VM

- SDL2 World Renderer (Done)
- Remove old VM code for handling graphics & events (Done)
- Idle VM (Done)
- Threaded FFI backend for UFFI (Done)
- Different running strategies (Worker / Same Thread / Main Thread) (Done)
- Consider using Lowcode to replace part of the machinery (Done / Discarded)
- Replace memory access with machine code primitives (Done)
- Improve FFI speed on Callbacks & Callouts (Done)
- JIT Testing Infra (Done)

VM Status

Headless VM

- Replace Old FFI Backend (Done)
- Use headless VM as default for Pharo 9 (Done)
- Implementing World renderers to use Idle VM (ToDo)

VM Status
ARM v8 (NEW)

- ARMv8 JIT VM (JIT + Libraries)
  - Ubuntu / Raspbian / Manjaro Linux (Beta Testing!!!)
  - Amazon EC2 - ARM Machine (Beta Testing!!!)
  - Windows (Ongoing)
  - OSX M1 Machine already ordered

Call for beta testers!!!
Contact Us!!!

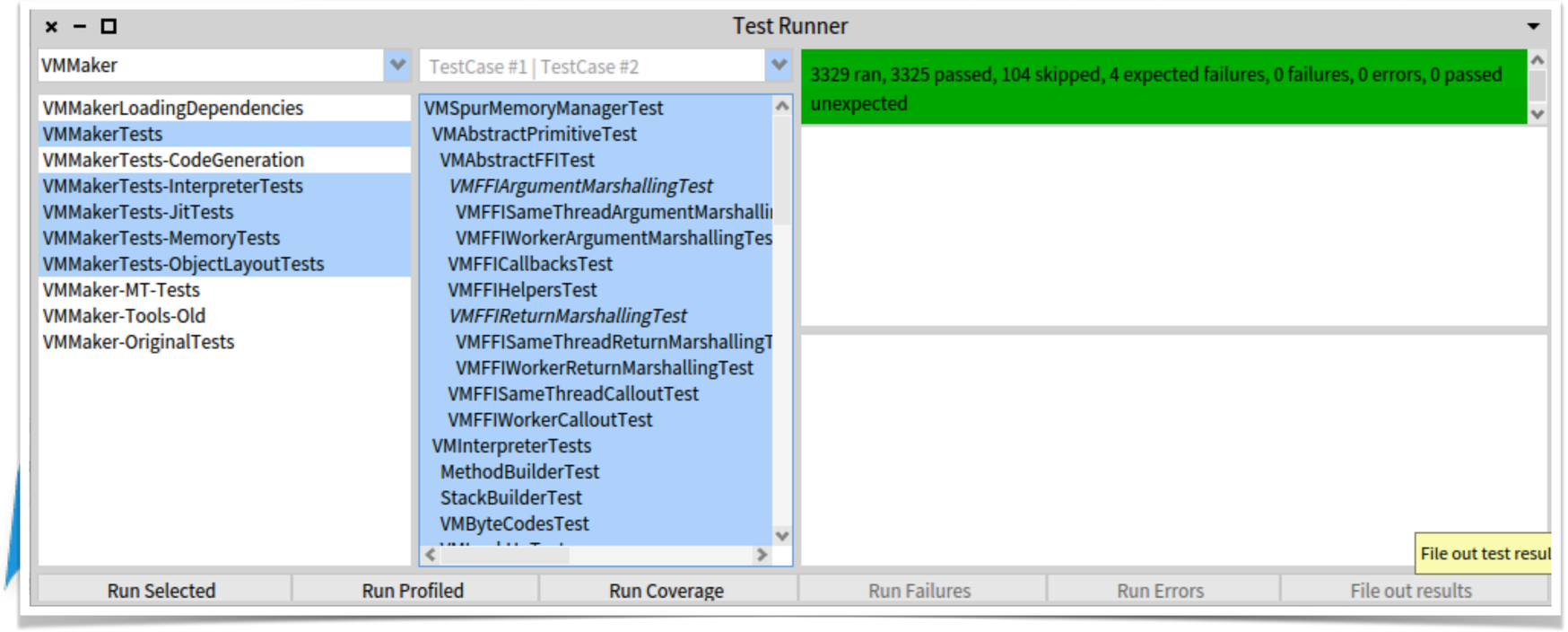
Build process improvements

Simple VM Building

- Better integration with System libraries
- Better integration with IDEs (Visual Studio / Eclipse / Xcode)
- Better support for compiler toolchains (gcc / clang / MSVC)
- Selectable Features at build time

Testing

VM Tests



- FFI
- Interpreter
- JIT
- Memory Model
- Code Translation
- Machine Code generation
- …

Open Build Service

Better Support for Linux Distributions

	Arch	Debian_10	Debian_9.0	Debian_Testing	Fedora_31	Fedora_32	Fedora_33	Raspbian_10		Raspbian_9.0	
	x86_64	x86_64	x86_64	x86_64	x86_64	x86_64	x86_64	aarch64	x86_64	aarch64	x86_64
libffi7		succeeded	succeeded		succeeded	succeeded	succeeded	succeeded	succeeded	succeeded	succeeded
libgit2-1		succeeded		failed							
pharo9	failed	succeeded	failed	failed	failed	failed	failed	succeeded	succeeded	failed	failed
pharo9-ui	succeeded	succeeded	succeeded	failed	succeeded	succeeded	succeeded		succeeded		succeeded

	Raspbian_9.0		openSUSE_Leap_15.1	openSUSE_Leap_15.2	openSUSE_Tumbleweed	xUbuntu_18.04	xUbuntu_19.04	xUbuntu_20.04	
	arch64	x86_64	x86_64	x86_64	x86_64	x86_64	x86_64	aarch64	x86_64
libffi7	cceded	succeeded	succeeded	succeeded	succeeded	succeeded	succeeded	succeeded	succeeded
libgit2-1			succeeded	succeeded		succeeded	succeeded		succeeded
pharo9	failed	failed	failed	failed	failed	failed	succeeded	succeeded	succeeded
pharo9-ui		succeeded	succeeded	succeeded	succeeded	succeeded	succeeded		succeeded

Initial targets:

- Arch / Manjaro
- Debian 9/10
- Fedora 31/32/33
- Raspbian 9/10
- Ubuntu 18.04-20.10
- openSuse Leap/Tumbleweed

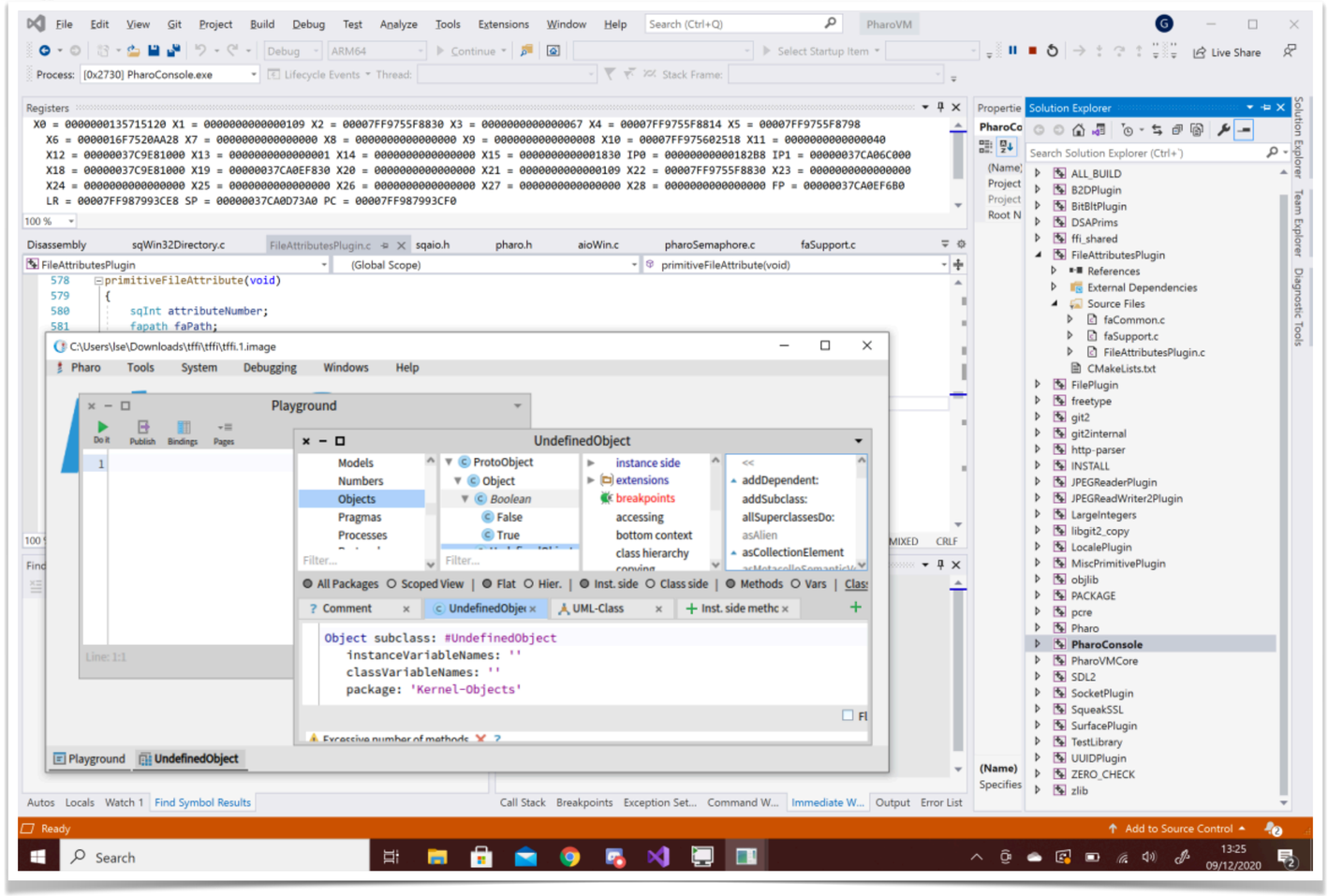
Multiple Architectures

Supporting system packagings

Building using existing system libraries

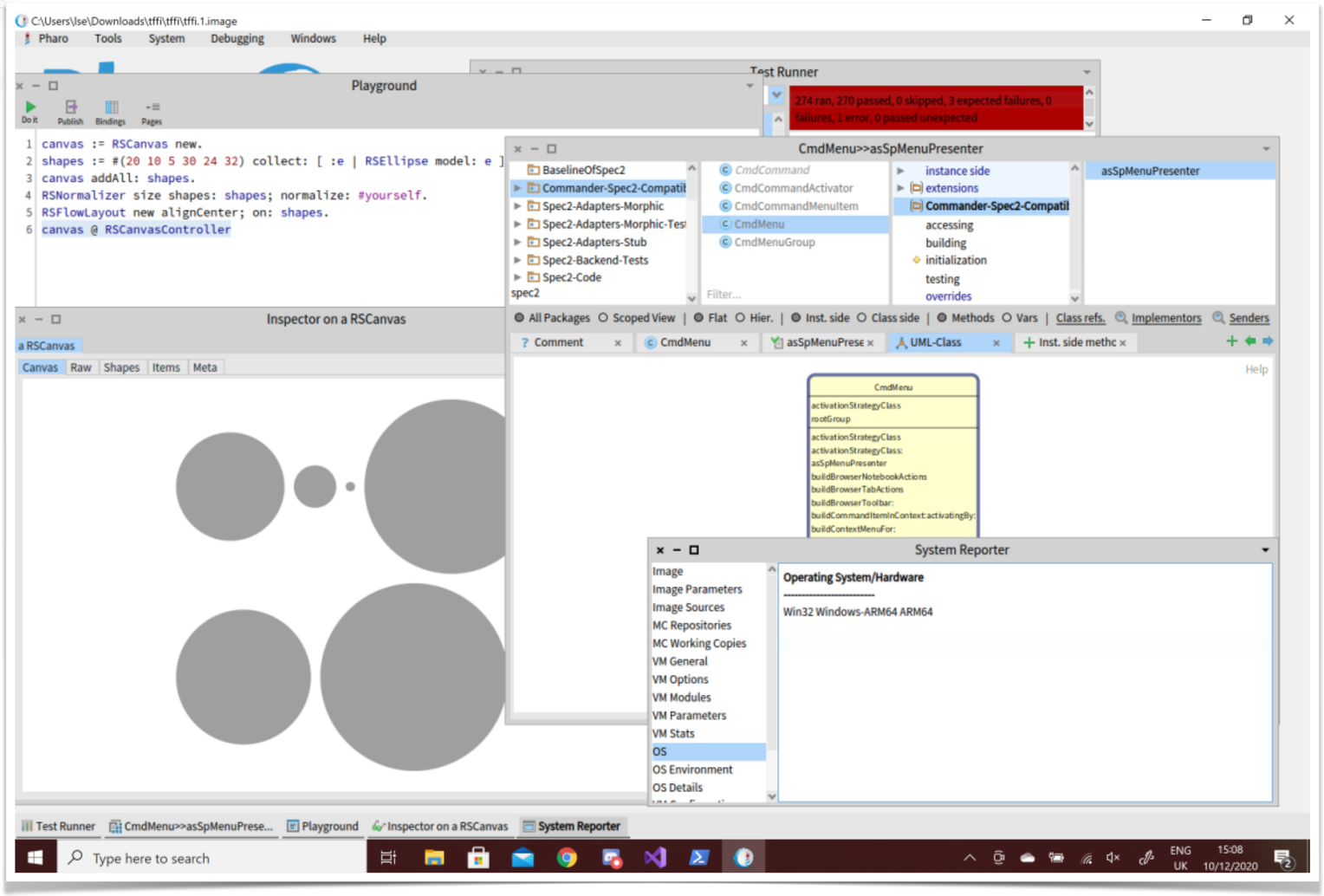
Visual Studio Support

Building & Debugging



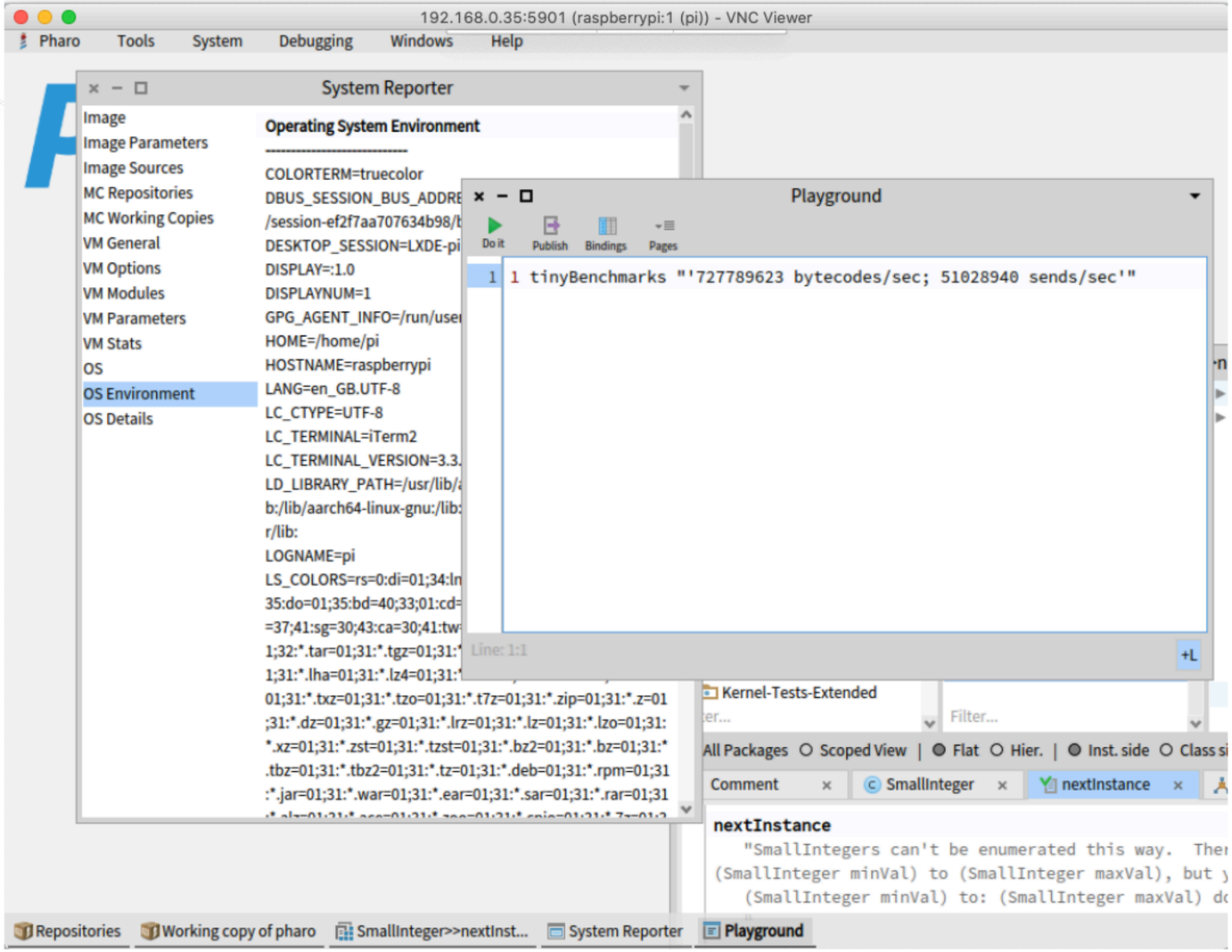
MSVC - No cygwin

Windows ARM



MSVC - No cygwin

Raspbian


192.168.0.35:5901 (raspberrypi:1 (pi)) - VNC Viewer
Pharo Tools System Debugging Windows Help
System Reporter
Image
Image Parameters
Image Sources
MC Repositories
MC Working Copies
VM General
VM Options
VM Modules
VM Parameters
VM Stats
OS
OS Environment
OS Details
Operating System Environment
COLORTERM=truecolor
DESKTOP_SESSION=LXDE-pi
DISPLAY=:1.0
DISPLAYNUM=1
HOME=/home/pi
HOSTNAME=raspberrypi
LANG=en_GB.UTF-8
LC_CTYPE=UTF-8
LC_TERMINAL=iTerm2
LOGNAME=pi
Playground
Do it
Publish
Bindings
Pages
1 tinyBenchmarks "'727789623 bytecodes/sec; 51028940 sends/sec'"
Line: 1:1
+L
Kernel-Tests-Extended
Filter...
All Packages Scoped View Flat Hier. Inst. side Class si
Comment
SmallInteger
nextInstance
nextInstance
"SmallIntegers can't be enumerated this way. Ther
(SmallInteger minVal) to (SmallInteger maxVal), but y
(SmallInteger minVal) to: (SmallInteger maxVal) do
Repositories
Working copy of pharo
SmallInteger>>nextInst...
System Reporter
Playground

Spec 2 & NewTools Status (Done Sept 2020)

- Core & Basic Layouts (Done)
- Basic Presenters (Done)
- Application Support (Done)
- Styles / Themes (Done)
- Code Presenter (Done)
- Playground (Done)
- Debugger (Done)
- Spec Core Documentation (Done)

Spec 2 & NewTools Status

Documentation

- Documentation
  - Layouts (Ongoing)
  - Widgets (Done)
  - Tutorial (Ongoing)
  - Book (Ongoing / Delayed)

Spec 2 & NewTools Status

New Tools in Spec2

- Inspector (Done)
- Iceberg migration to Spec2 (Ongoing)
- Spotter (Ongoing)
- Diff Presenter (Ongoing)

Image Status (Done Sept 2020)

- Sista Bytecodes w/ Full Block Closures (Done)
- Memory Management Configuration (Done)
- Integration with Windows (Done)
- Roassal3 Integrated (Done)

Image Status

Compiler Improvements

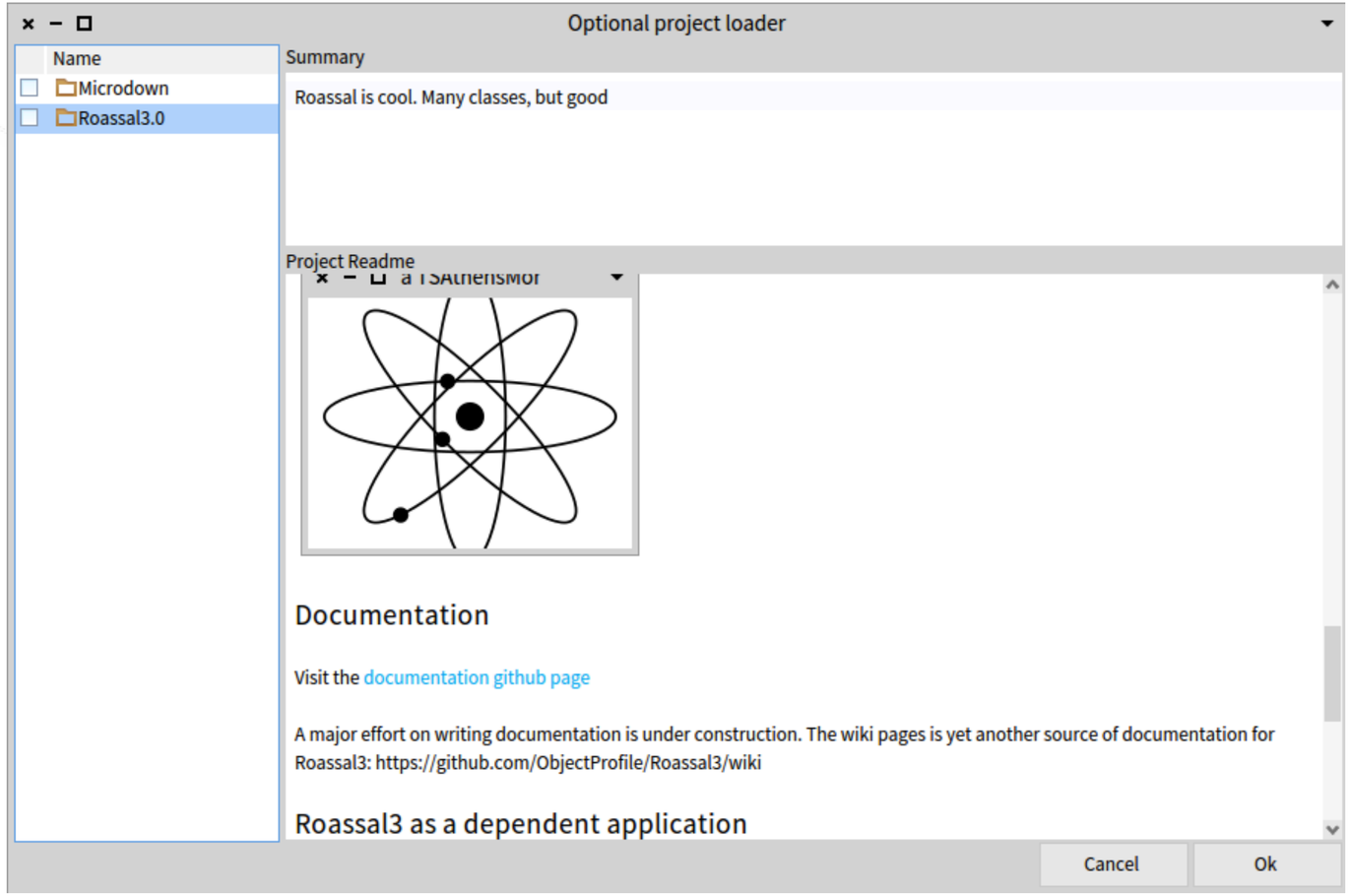
- Unifying objects variables into a single Hierarchy (Done)
- Improved Semantic Analysis (Done)
  - use Class and the Environment to lookup the variables
  - use Variable Hierarchy to model variables for name analysis.
  - Improved AST Visitor(Done)
- Pragma lookup speed-up (Done)
- Compiler Speed Improvements (Ongoing)
- Clean Block Improvements (Ongoing)
- Literal Sharing (Ongoing)

Image Status

Other Big Goals

- Microdown (Done)
- Parser Improvements (Done)
- .NET: FFI / UI Embedding (First Stage done)
- Fluid Class Parser (Ongoing)
- Image Distributions - Optional Project Loader (Ongoing)
- Distributed Test Runner (Ongoing)
- High DPI support (Ongoing)

Image Distributions - Optional Project Loader



Optional Projects Loader - NewTools

Parser Improvements

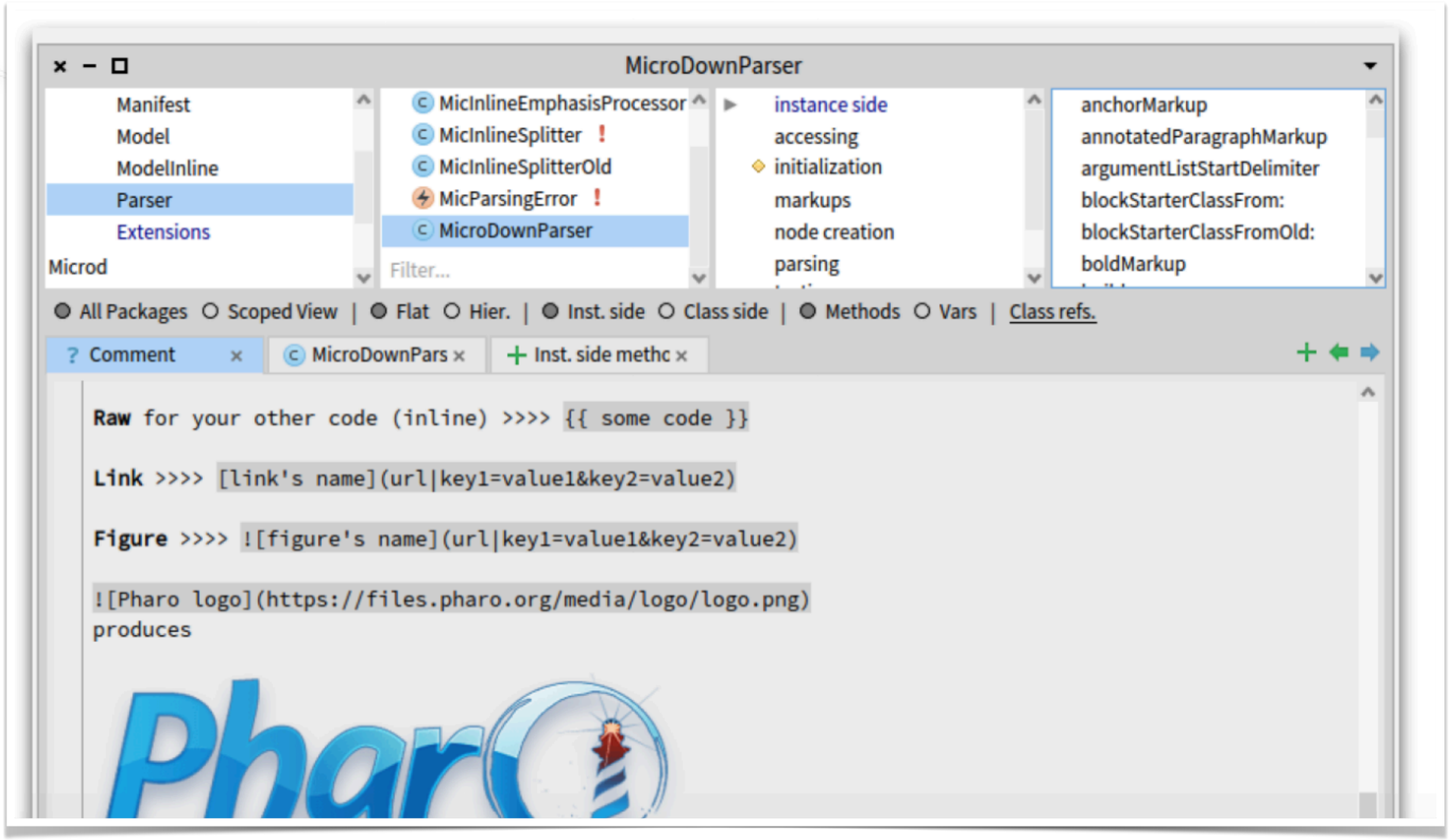
```
example

    | presenter |
    ))
    ((
    (presenter := SpPresenter new)
        layout: (SpBoxLayout newVertical
            add: (presenter newButtonBar
                add: presenter newButton;
                )).
                ^ true.
                ^ true
```

Pharo 8

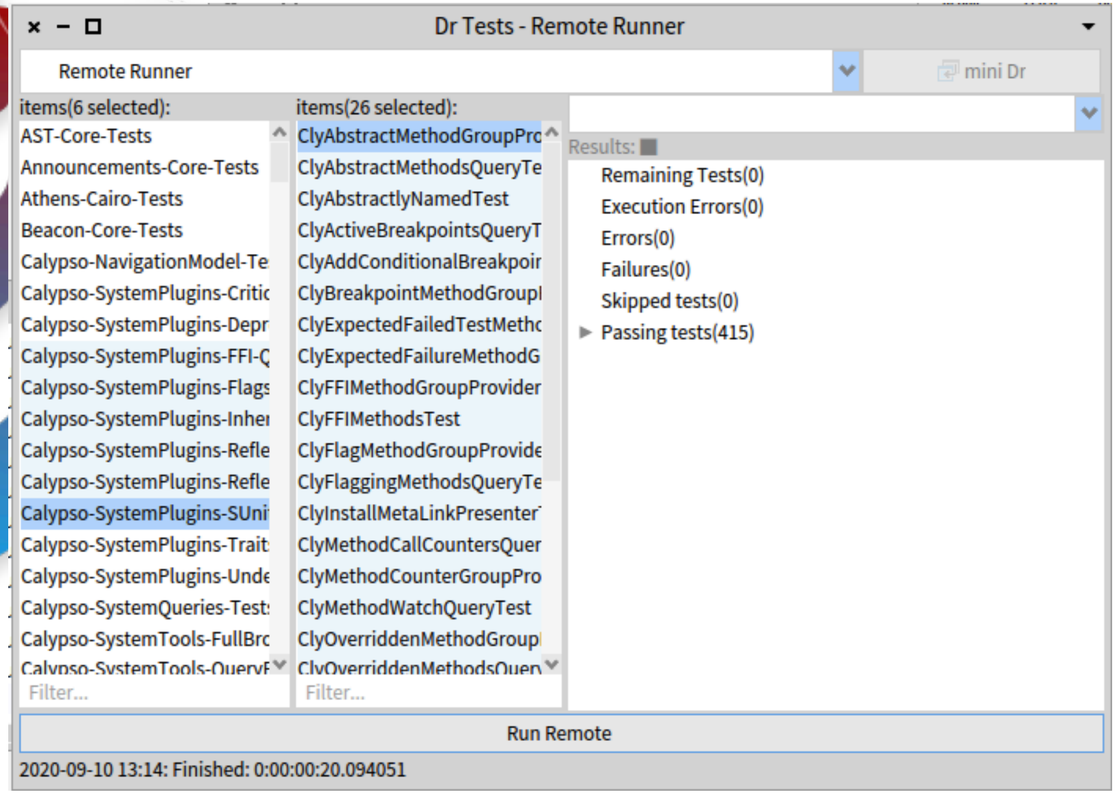
```
example

    | presenter |
    ))
    ((
    (presenter := SpPresenter new)
        layout: (SpBoxLayout newVertical
            add: (presenter newButtonBar
                add: presenter newButton;
                )).
                ^ true.
                ^ true
```

Pharo 9

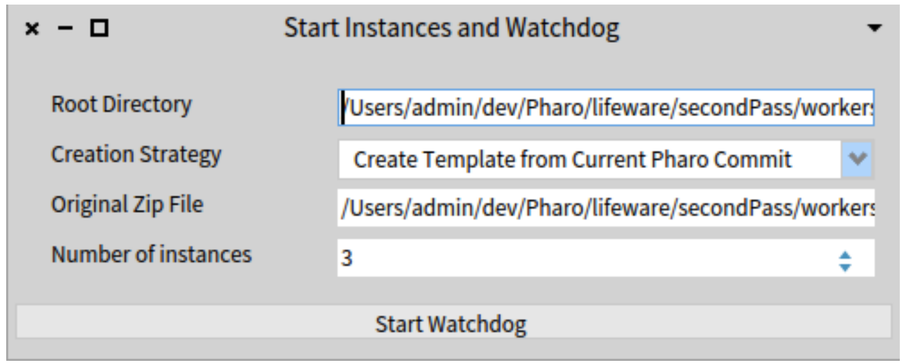
Microdown Comments & Renderer

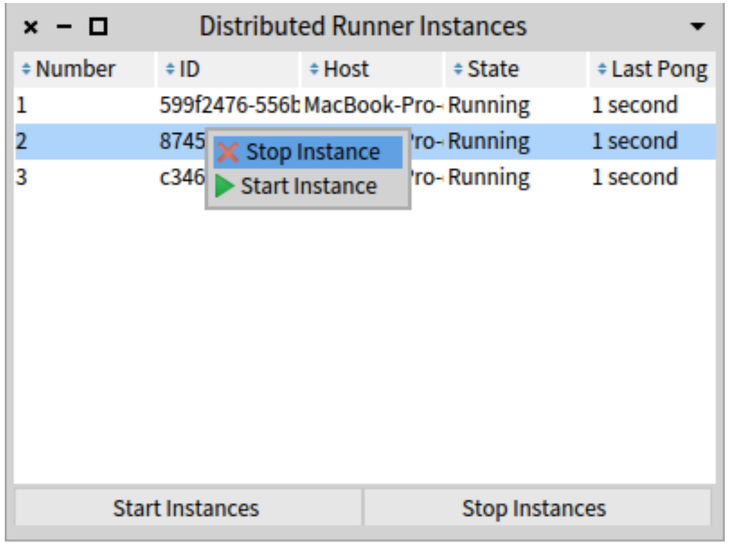


Distributed Test Runner



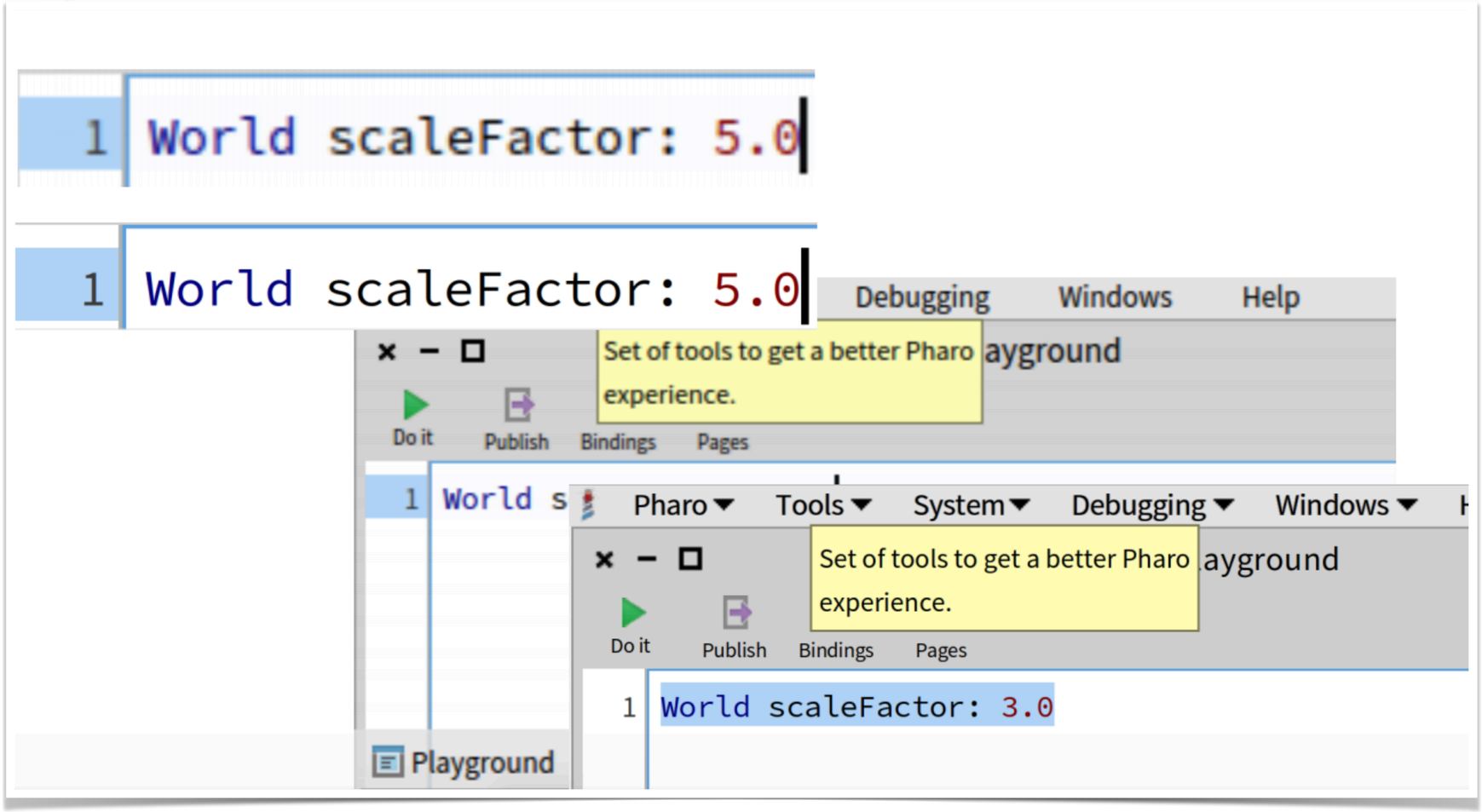
Integration with Dr. Test





Controlling Instances

Scaling & HDPI Support - Ongoing



Pharo Promotion

- Mooc with Pharo 8:
  - New 74 videos in French and English
  - New session in November
  - Everything in Youtube
- Pharo Master Class (INRIA Academy / INRIA Chile)
  - 100+ participants
- Pharo By Example - Updated Edition

Mooc New Session

Home • All courses • Programmation objet immersive en Pharo / Live Object Programming in Pharo

Programmation objet immersive en Pharo / Live Object Programming in Pharo

Thematics Informatique Numérique, technologie Programmation

Cette nouvelle version du Mooc est basée sur **Pharo 8.0**, github,
et mise à jour avec 70 nouvelles vidéos.
This new version of the Mooc is based on **Pharo 8.0**, github,
and comes with 70 new videos.

Langue / Language

Ce cours est **entièrement bilingue français/anglais**
et sous-titré en français 🇫🇷, **anglais** 🇬🇧, **espagnol** 🇪🇸 **et japonais** 🇯🇵

This course is **fully dubbed in french and english**
Subtitles in french 🇫🇷, **english** 🇬🇧, **spanish** 🇪🇸 **and japanese** 🇯🇵

Thanks!!!

pharo.org

pharo-project/pharo

discord.gg/QewZMZa

thepharo.dev