THE RADIANCE TEST SUITE

Rob Guglielmetti

View, Inc. (ex NREL, et al.)

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MOTIVATION

- Needed 'easy' way to produce reliable, crossplatform Radiance installers
- Radiance for Windows
 - Include Windows versions of GUI apps (e.g. rvu)
- Keep pace with Radiance source development
- Regular Radiance releases related to specific OpenStudio releases

HISTORY

Radiance for Windows

Axel Jacobs Learnix (last update ~2016)

- Francesco Anselmo
 Windows binaries compiled with mingw, (last update ~2008)
- Georg Mischler
 Rayfront ~2003, Windows rvu!
- LBNL
 Desktop Radiance (2000?)



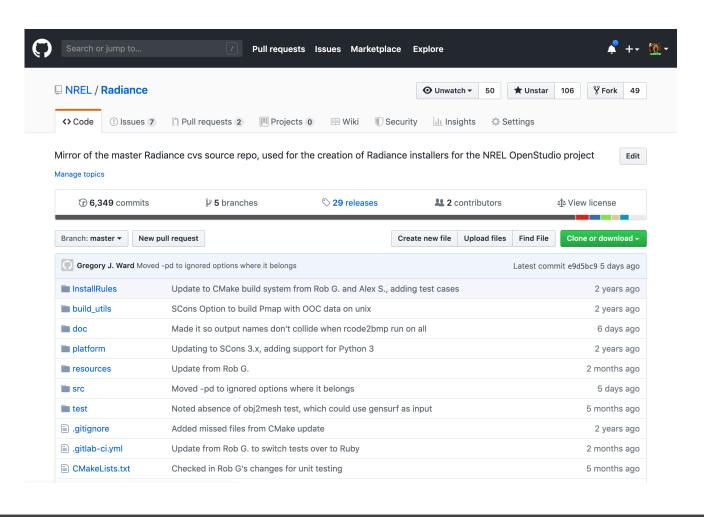
NREL'S ANSWER

NREL RADIANCE BUILD/TEST

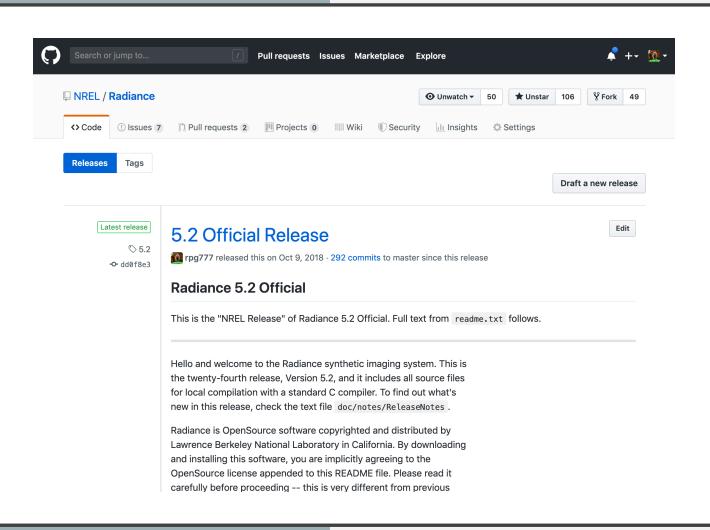
2013-present

- Implemented 'makefile management system' with CMake
- Custom build targets for cross platform apps
- Created a new, Qt-based rvu application that runs on Windows
- Wrote initial suite of tests using ctest
- Created mirror of the main Radiance source code repository
 - One-way sync between authors' code (in CVS)
 and the Git repository









WE BUILT IT, THEY CAME FOR IT

robertguglielmetti\$ ruby release_stats.rb

. . .

https://api.github.com/repos/NREL/Radiance/releases

Release: 5.2 Official Release

Published: 2018-10-09T20:52:20Z

Downloads (asset name, download count):

-- radiance-5.2.dd0f8e38a7-Darwin.dmg, 911

-- radiance-5.2.dd0f8e38a7-Linux.tar.gz, 3182

-- radiance-5.2.dd0f8e38a7-Windows.exe, 7235

Total downloads: 11328

BUT WHAT ABOUT THE TESTS?

Yeah, what about the tests?

2019 WORK

- RADCOMPARE utility
 - See Greg's pres.
- Tests(!)
 - Greg happens...
- Test wrappers
 - So that normies and CI suites can actually use the tests
- Dashboard (doh!)
 - Googs leaves NREL... _()_/
 - Work in progress for 2019/20

TEST WRAPPER

- Written in Ruby (get over it)
- Can run on all existing tests, or call specific tests, or "clean"
- Auto grabs all available cores for multithreaded apps (can be user specified)
- Make targets are all replicated in Ruby, and future additions in make will simply be replicated in this script
- Works like this:

From build/resources: ruby ./test_lib.rb

SAMPLE OUTPUT

```
~/src/Radiance/build/resources $ ruby ./test lib -n 16 -t test rtrace
running test: test rtrace
generating input file: rtmirror_fish.hdr
oconv basic.mat diorama walls.rad closed_end.rad front_cap.rad glass_pane.rad antimatter_portal.rad
bubble in cube.rad mirror.rad sunset sky.rad > mirror.oct
command: vwrays -ff -vf fish.vf -x 2048 -y 2048 | rtrace -n 8 @mirror.opt -ffc -x 2048 -y 2048 mirror.oct |
pfilt -1 -e +3 -r .6 -x /2 -y /2 > rtmirror fish.hdr
command: pfilt -1 -r 1 -x 128 -y 128 -pa 1 rtmirror fish.hdr | radcompare -v -rms 0.07 -max 1.5 -h
ref/mirror fish.hdr -
radcompare: input file type is 32-bit_rle_rgbe
radcompare: comparing inputs as HDR images
radcompare: relative RMS difference of reals in 'ref/mirror fish.hdr' and '<stdin>' is 0.014809
result: PASS
```

WHAT NOW

Yeah, what now?

- Continued funding for this work has been promised by DOE
- Greg will add more (make-based) tests
- Rob will fold them into the "Ruby test wrapper"
- NREL will continue to host a Radiance source mirror on GH
- A Jenkins-based build/test workflow will be enabled and hosted at NREL, and test results will be posted to the NREL Radiance GH site
- Rob et al. will fix the build issues with rvu and address the still missing files from the NREL packages
- Timeframe: now-2020

ACKNOWLEDGEMENTS

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THIS ENTIRE COMMUNITY.

THANK YOU!

Questions, Complaints, What-have-you?

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https://github.com/rpg777

https://github.com/NREL/Radiance