R Markdown 与 Travis-CI 之结合应用

生成 bookdown 网页及 PDF

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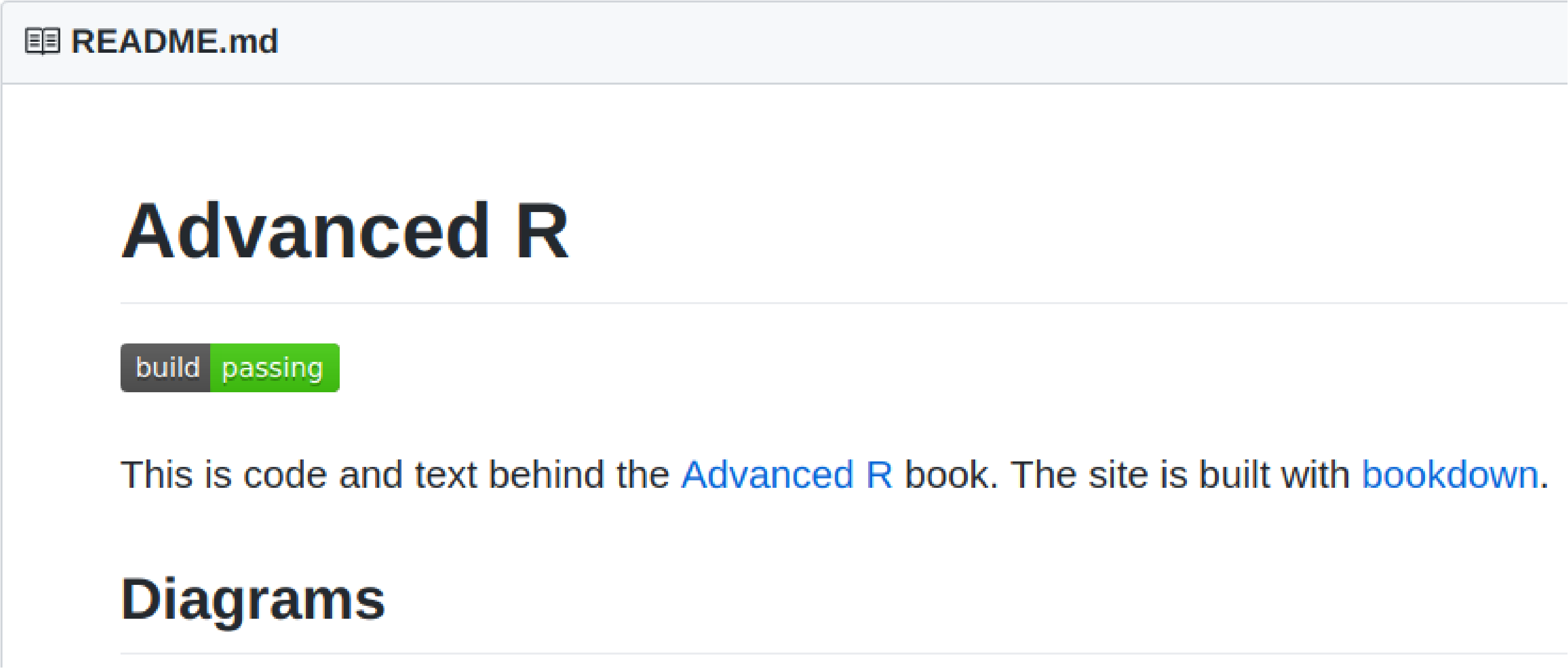
bit.ly/TravisRmd

Travis & Continuous Integration

What is Travis?



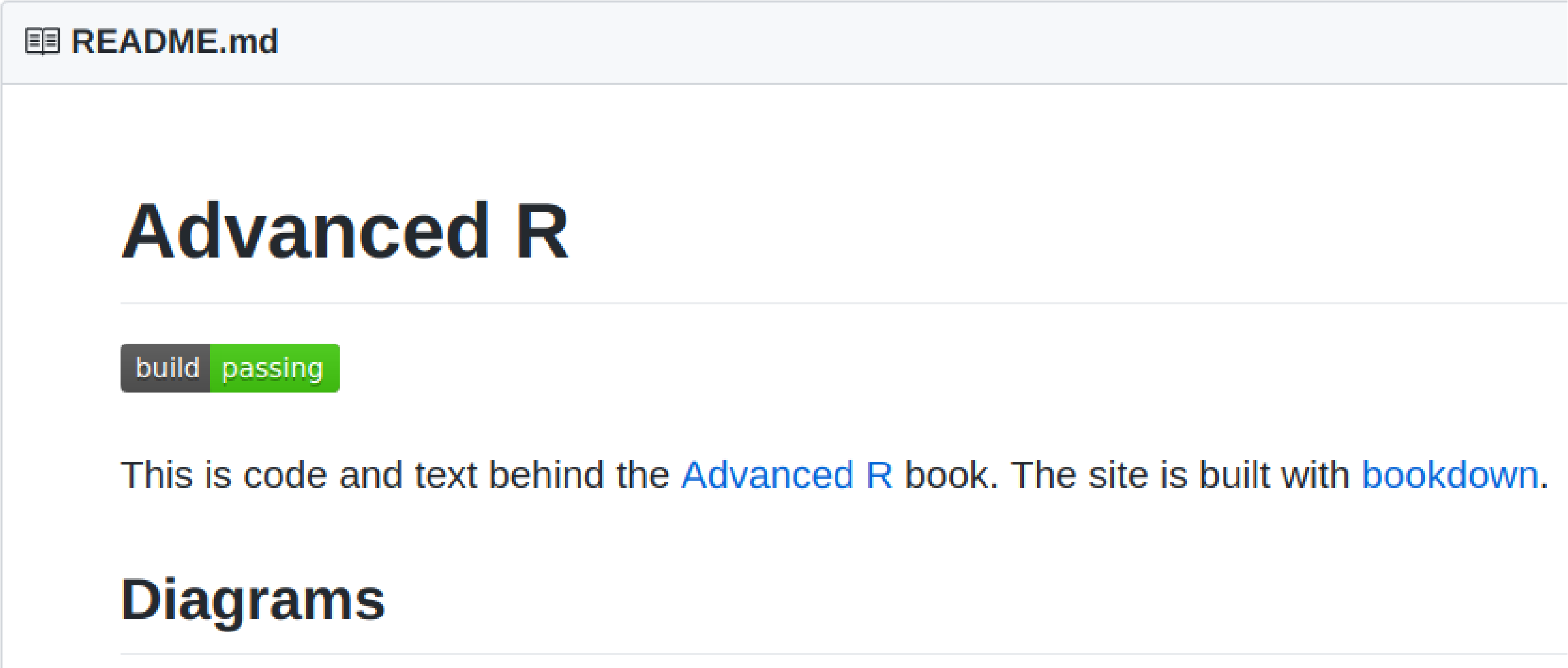
README.md

Advanced R

This is code and text behind the Advanced R book. The site is built with bookdown.

Diagrams

What is Travis?



README.md

Advanced R

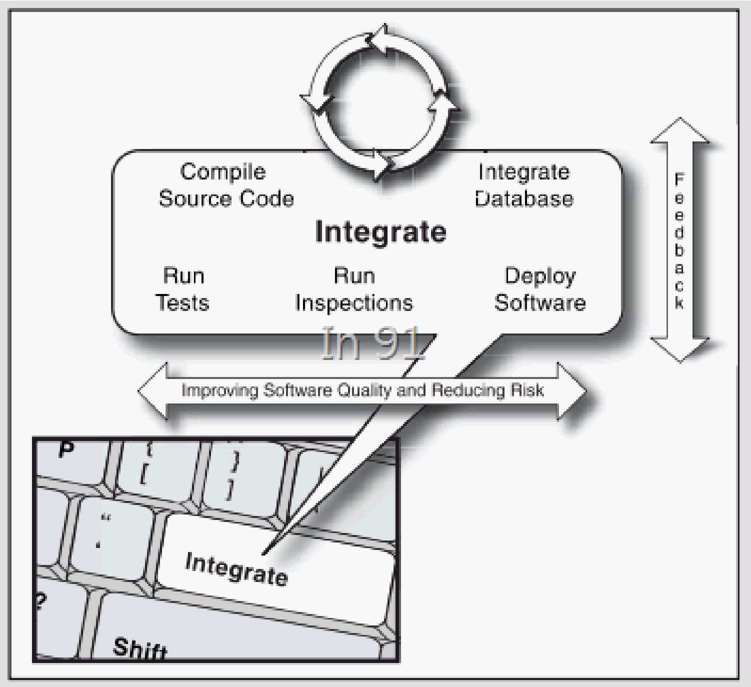
build passing

This is code and text behind the Advanced R book. The site is built with bookdown.

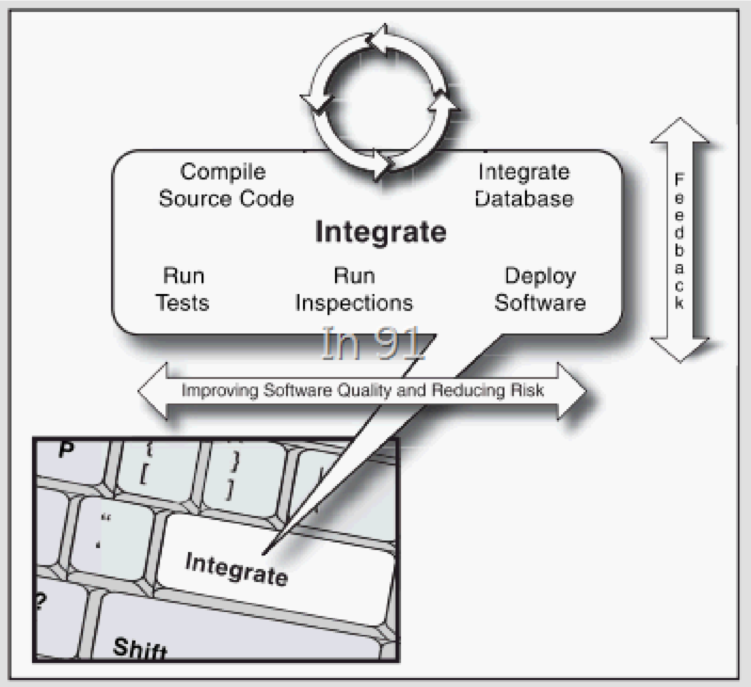
Diagrams

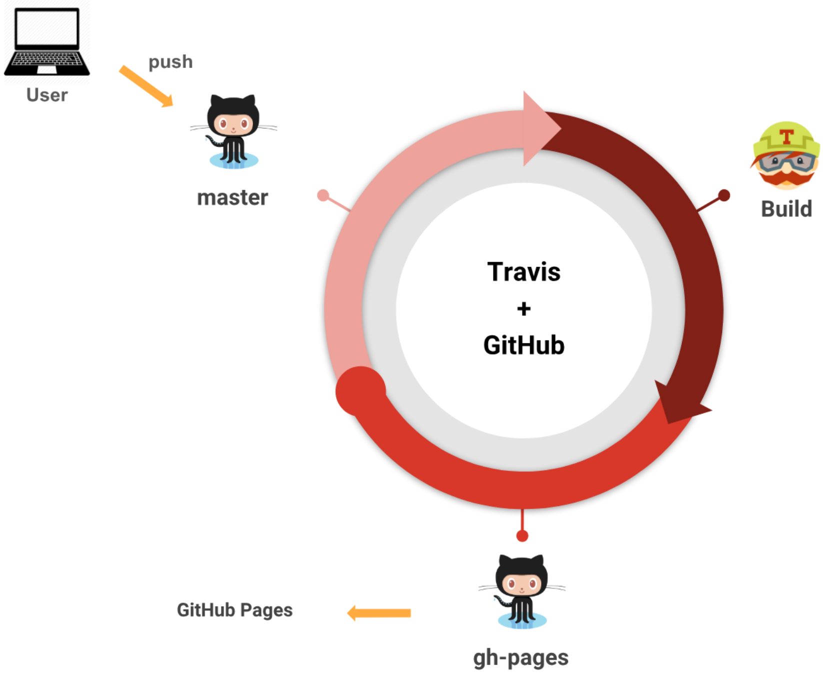
build passing build failing build error

What is Travis?

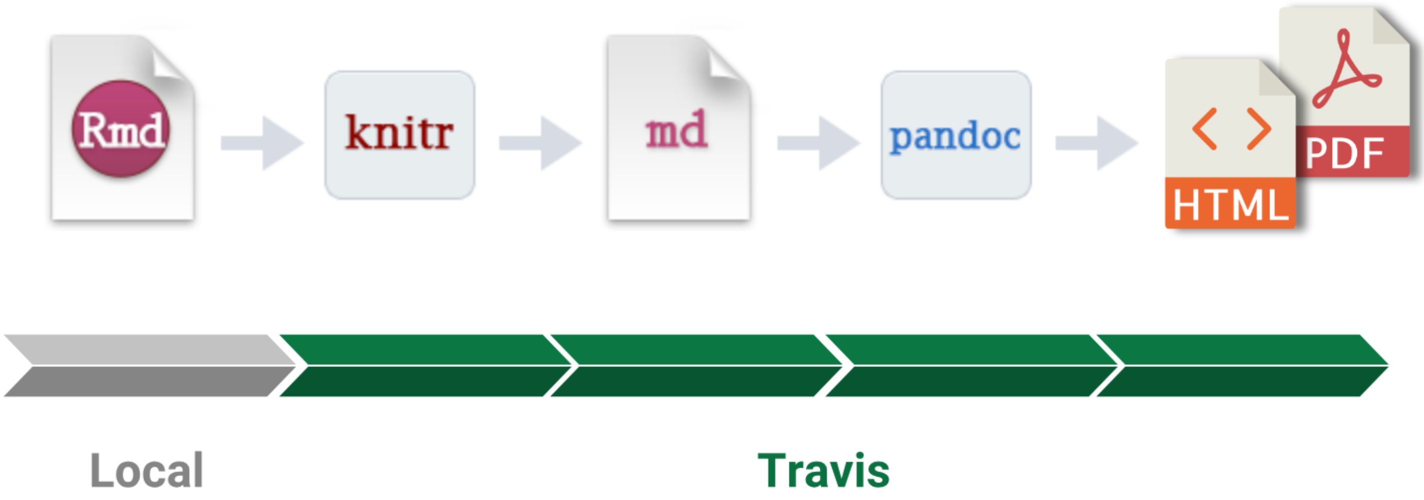


What is Travis?

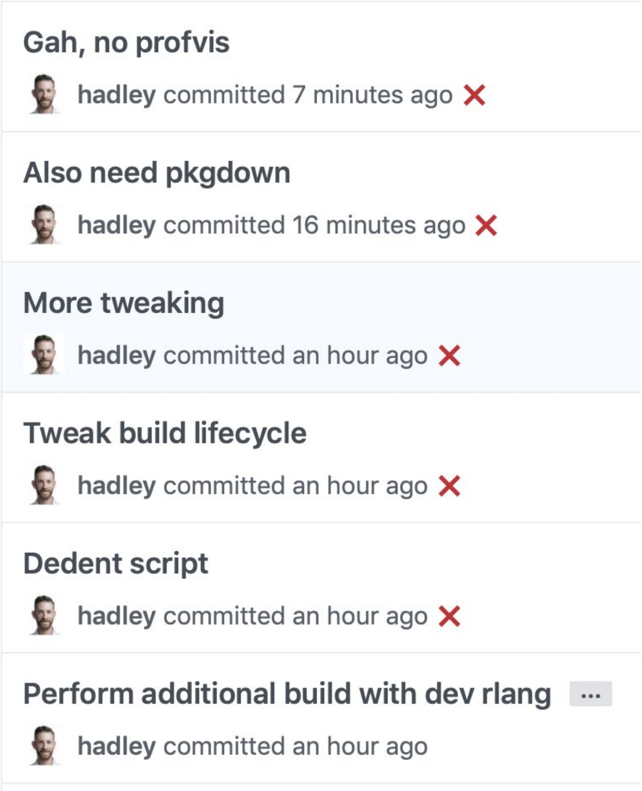




Travis 跟 R Markdown 有何干系？



Using Travis



Gah, no profvis

hadley committed 7 minutes ago ✗

Also need pkgdown

hadley committed 16 minutes ago ✗

More tweaking

hadley committed an hour ago ✗

Tweak build lifecycle

hadley committed an hour ago ✗

Dedent script

hadley committed an hour ago ✗

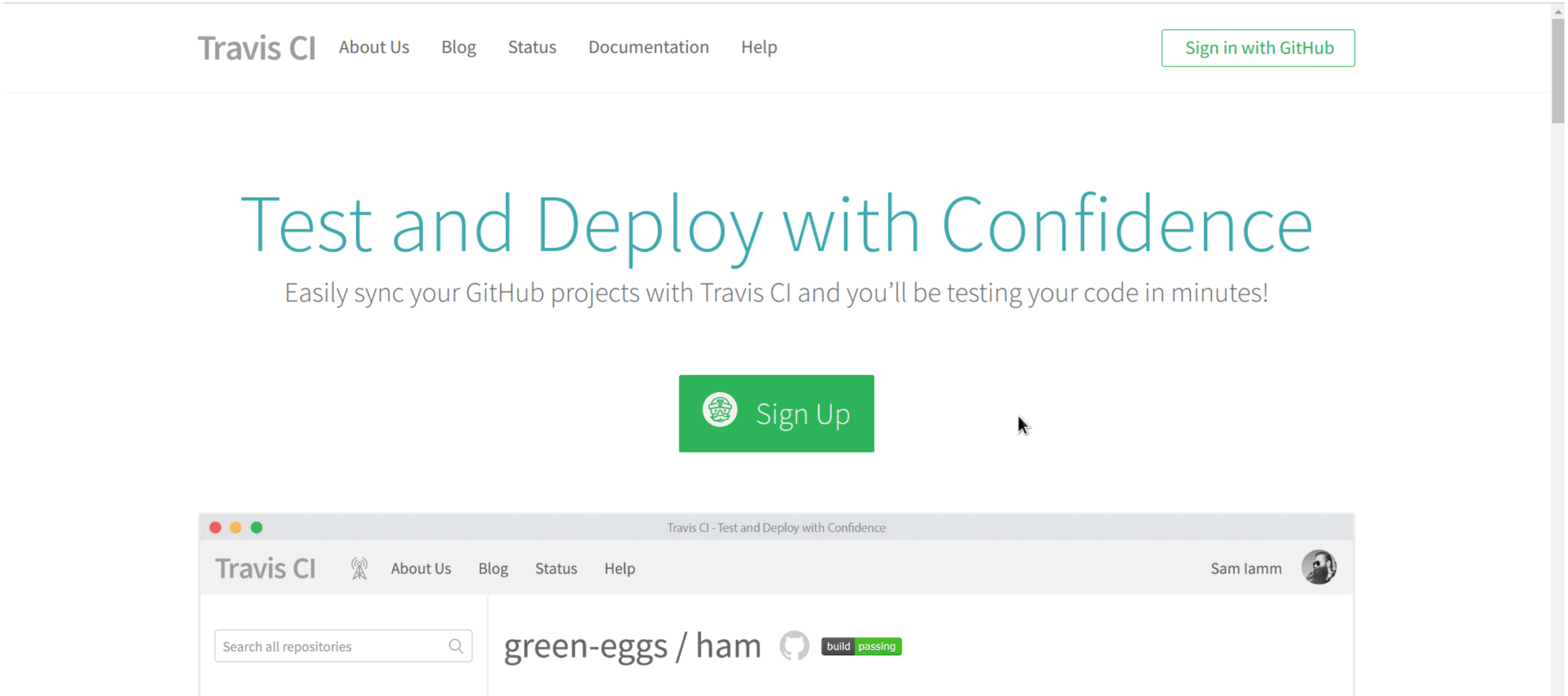
Perform additional build with dev rlang ...

hadley committed an hour ago

> I've been using travis for quite some years, and this is still what my commit history looks like when trying to set up a new configuration
>
> — Hadley Wickham (@hadleywickham) December 11, 2018

注册 Travis 帐号

- travis-ci.org ➜ Sign in with GitHub ➜ 完成



Test and Deploy with Confidence

Easily sync your GitHub projects with Travis CI and you'll be testing your code in minutes!

GitHub Repo 设置

1. DESCRIPTION
    - 无功能但必要
    - 让 Travis 以为 Repo 是 R 套件
    - 内容：

      ```
      Package: fakepkg
      Title: fakepkg
      Version: 1.0.0
      ```

2. .travis.yml
    - 设置 Travis 指令

.travis.yml

内容 GitHub

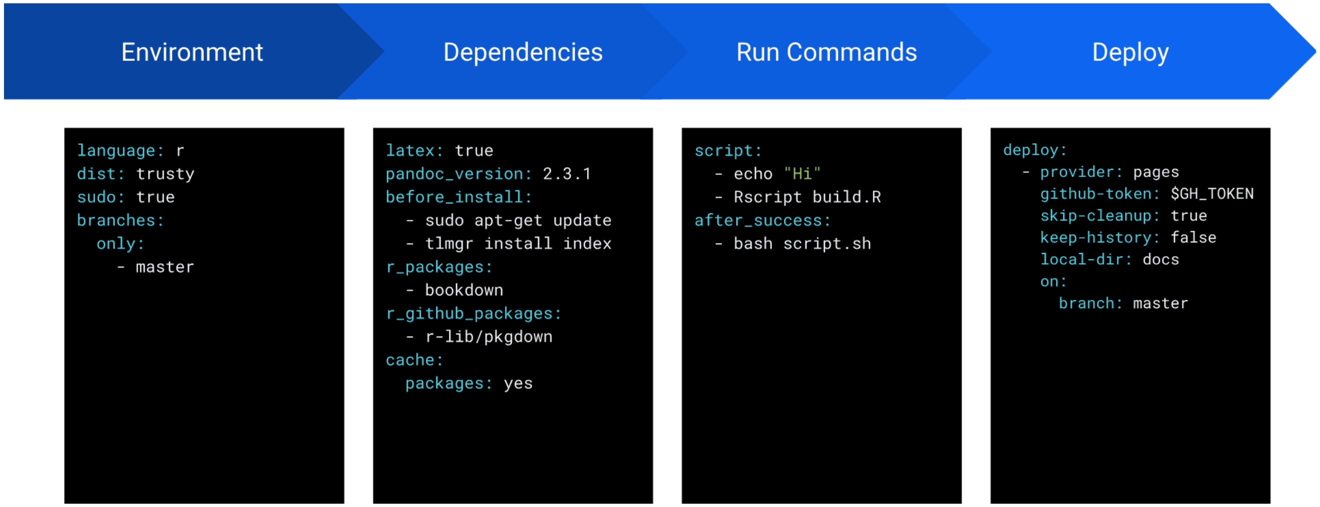
```
# R for travis: see documentation at https://docs.travis-ci.com
language: R
sudo: required
cache:
  packages: yes
  directories:
    - $TRAVIS_BUILD_DIR/img
dist: trusty
pandoc_version: 1.19.2.1

services:
  - docker

before_install:
  - sudo apt-get update
  - curl -o- https://raw.githubusercontent.com/creationix/nvm/v
  - source ~/.nvm/nvm.sh                # Update nvm
  - nvm install 8.12.0                  # Install node (nodejs)
  - npm config set strict-ssl false     # Setup decktape
  - npm install -g node-gyp             # Setup decktape
```

.travis.yml

内容



Environment

```yaml
language: r
dist: trusty
sudo: true
branches:
  only:
    - master
```

Dependencies

```yaml
latex: true
pandoc_version: 2.3.1
before_install:
  - sudo apt-get update
  - tlmgr install index
r_packages:
  - bookdown
r_github_packages:
  - r-lib/pkgdown
cache:
  packages: yes
```

Run Commands

```yaml
script:
  - echo "Hi"
  - Rscript build.R
after_success:
  - bash script.sh
```

Deploy

```yaml
deploy:
  - provider: pages
    github-token: $GH_TOKEN
    skip-cleanup: true
    keep-history: false
    local-dir: docs
    on:
      branch: master
```

.travis.yml

内容

Environment

设置语言 **(R)**, 操作系统, **GitHub Branch**

```
language: r
dist: trusty
sudo: true
branches:
  only:
    - master
```

.travis.yml

内容

Environment

Dependencies

安装 R 包, System Requirements[*], LaTeX 与 Pandoc 等

```yaml
pandoc_version: 2.3.1
latex: false       # tinytex is better
before_install:    # 安装 R 包以外 dependencies
  - sudo apt-get update
r_packages:        # 安装 CRAN 上的 R 包
  - bookdown
  - tinytex
  - ggplot2
r_github_packages:  # 安装 GitHub 上的 R 包
  - r-lib/pkgdown
cache:
  packages: yes  # 缓存下载之 R 包, 加快 Travis 速度
```

[*]: 例如 `xml2` 在 Ubuntu 上需要 R 包以外的软件 (`libxml2-dev`) 才能运作。

`.travis.yml`

内容

Environment

Dependencies

Run Commands

可以很简单，也可以很复杂

- Minimum skills required
  - file manipulation (`bash` or `R`)
- Advanced
  - docker, command line tools, download binaries, …
  - The sky is the limit

.travis.yml

内容

Environment

Dependencies

Run Commands

基本 Command Line 指令 (bash)

运行 R 指令

```
R -e 'bookdown::render_book("index.Rmd")'
Rscript build.R
```

File Manipulation[*]

```
if [[ -d docs ]]; then rm -r docs; fi
mkdir docs
cp -r _book/* docs
```

[*]: R 亦可进行 file manipulation，参考 R File Manipulation 与 R Functions for Linux Commands。

.travis.yml

内容

Environment

Dependencies

Run Commands

Wrap up — `script`:

- Current working directory: Cloned GitHub repo

1.
```
script:
- R -e 'tinytex::install_tinytex()'
- R -e 'bookdown::render_book("index.Rmd", output_format =
- R -e 'bookdown::render_book("index.Rmd", output_format =
- if [[ -d docs ]]; then rm -r docs; fi
- mkdir docs
- cp -r _book/* docs
```

2.
```
script:
- bash build.sh
```

3.
```
script:
- Rscript build.R
```

源码 `build.sh`, `build.R`

`.travis.yml`

内容

Environment

Dependencies

Run Commands

Bypassing Build Failure (Advanced)

1. **`script`**
   - 覆盖默认之 `R CMD Check`
   - 运行正常 (➜ 运行 **`after_success`**)
   - 运行出错 ➜ build failing (➜ 运行 **`after_failure`**)
2. **`after_success`**
   - 不影响 build result

   -
     ```
     script:
     - echo "Bypassing script"
     after_success:
     - bash build.sh
     ```

.travis.yml

内容

Environment

Dependencies

Run Commands

Deploy

```yaml
deploy:
  - provider: pages
    github-token: $GH_TOKEN
    #target-branch: <name>  # 默认: `gh-pages`
    skip-cleanup: true
    keep-history: false
    local-dir: docs
    on:
      branch: master
```

- 将 build 结果传回 GitHub Repo

.travis.yml

内容

Environment

Dependencies

Run Commands

Deploy

```
deploy:
  - provider: pages
    github-token: $GH_TOKEN
    #target-branch: <name>  # 默认: `gh-pages`
    skip-cleanup: true
    keep-history: false
    local-dir: docs
    on:
      branch: master
```

1. GitHub Personal access token ➜ Generate new token
   ➜ scope: `public_repo` ➜ copy token

2. travis-ci.org/`<user>`/`<repo>`/settings
   ➜ Environment Variables
   ➜ `Name` = `GH_TOKEN`, `Value` = token from 1.

.travis.yml

内容

Environment

Dependencies

Run Commands

Deploy

```yaml
deploy:
  - provider: pages
    github-token: $GH_TOKEN
    target-branch: travis-build   # 默认: gh-pages
    skip-cleanup: true
    keep-history: false
    local-dir: docs
    on:
      branch: master
```

- 使用 gh-pages 以外的 branch

.travis.yml

内容

Environment

Dependencies

Run Commands

Deploy

```yaml
deploy:
  - provider: pages
    github-token: $GH_TOKEN
    #target-branch: travis-build  # 默认: gh-pages
    skip-cleanup: true
    keep-history: false
    local-dir: docs
    on:
      branch: master
```

- Reminder:

  ```yaml
  script:
      ...
      - mkdir docs
      - cp -r _book/* docs
  ```

.travis.yml

内容

Environment

Dependencies

Run Commands

Deploy

```
deploy:
  - provider: pages
    github-token: $GH_TOKEN
    #target-branch: travis-build  # 默认: gh-pages
    skip-cleanup: true
    keep-history: false
    local-dir: docs
    on:
      branch: master
```

- Travis was told to run on `master` branch:

```
language: r
  ...
  branches:
    only:
      - master
```

`.travis.yml`

内容

Environment

Dependencies

Run Commands

Deploy

- Push to GitHub ➜ Travis build auto-triggered
  ➜ build success ➜ Web site served at `<user>`.github.io/`<repo>`
- 亦可手动直接在 Travis 网页上 trigger build:

  travis-ci.org/`<user>`/`<repo>` ➜ More options ➜ Trigger build