Cookbook for CICD with R and GitHub Actions

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Contents

Chapter 1

Intro

This is a small collections of step-by-step on how to set-up of r-lib GitHub Actions for CICD with R programming. It mainly use the package `usethis`(version 2.1.6). More details of the actions can be found here. When I thought necessary I have added a few additional steps, e.g. when using other services from GitHub or Codecov which I thought was missing when I was trying to learn about GitHub Actions.

The book was built with **bookdown**.

Chapter 2

R CMD check

2.1 R-CMD-check

Quick how-to to set a github action for a R CMD check each time there is merge into the **main** (or **master**) branch using `r-lib` check-release.yaml or check-standard.yaml.

2.2 Prerequisite

None in particular but could be good to have some tests already.

2.3 Steps

- Create your package.
- Try to test your package `devtools::test()` or `devtools::check()`
  - While this step is not really necessary, it is to make sure your tests runs once and any further problems do not come from the tests.
- Add the check-release.yaml `usethis::use_github_action("check-release")` or check-standard.yaml `usethis::use_github_action("check-standard")`
  - check-release.yaml will run R CMD check on Ubuntu and current R version

  - check-standard.yaml will run R CMD check on 3 OS: mac and Windows with the current R version, Ubuntu with the current, development and previous version of R. This what you would want for CRAN.

- Add the badge with `usethis::use_github_actions_badge("check-release")` or `usethis::use_github_actions_badge("check-standard")`
- Push!

Chapter 3

Test coverage

3.1 test-coverage

Quick how-to to set a GitHub action to get code coverage and the badge from Codecov each time there is merge into the **main** (or **master**) branch using `r-lib` test-coverage.yaml.

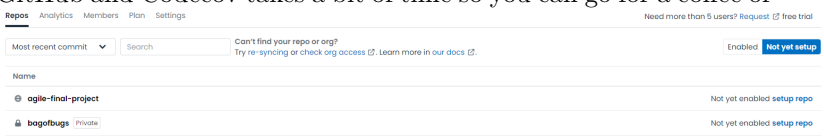
3.2 Prerequisite

Have a Codecov account link with your repository.

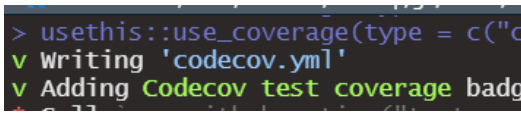
None in particular but could be good to have some tests as to get a coverage of something.

3.3 Steps

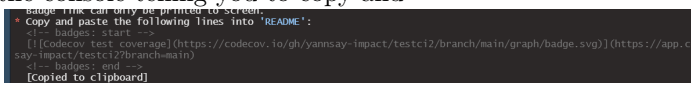
- Create your package.
- Link your local to the remote if it has not be done yet (make sure your project is linked to a Github repository).
- Make sure Codecov has synced with your repository. The repository should appear in the *Not yet setup* if this is the first time. The syncing between GitHub and Codecov takes a bit of time so you can go for a coffee or lunch.



- Try to test your package `covr::package_coverage()`.
  - While this step is not really necessary, it is to make sure your tests runs once and any further problems do not come from the tests.
- Add the test-coverage.yaml `usethis::use_github_action("test-coverage")`
- Add the badge with `usethis::use_coverage("codecov")`



  - This step should add a badge in your readme file.
  - Or should give you a message in the console telling you to copy and paste some lines in the README.



  - If nothing happen, you can add the line directly following the syntax or remove the **codecov.yml** from the project folder and run `usethis::use_coverage("codecov")` again.
- Push!
- The GitHub action will push the report to Codecov, you can see the report by clicking on the badge.
  - **Github and Codecov needs to sync for the percentage to appear**

Chapter 4

Style

4.1 styler

Quick how-to to set a github action to style each time there is push or a pull request with files that includes *.[rR]*, *.[rR]md*, *.[rR]markdown*, *.[rR]nw*. into the **main** using `r-lib` style.yaml.

4.2 Prerequisite

None in particular.

4.3 Steps

- Create your package.
- Try to test your package `styler::style_pkg()`
  - While this step is not really necessary, it is to make sure your tests runs once and any further problems do not come from the tests.
- Add the style.yaml `usethis::use_github_action("style")`
  - You can change the styler::style_pkg to `styler::style_file` or `styler::style_dir`.

```yaml
- name: Style
  run: styler::style_pkg(filetype = c(".R", ".Rmd", ".Rmarkdown", ".Rnw"))
  shell: Rscript {0}
```

  - More info and customisation on the package page.

- Push!

Chapter 5

Bookdown

5.1 Bookdown

Quick how to set a github action for a bookdown deployment onto the gh-pages branch each time there is merge into the **main** (or **master**) branch using `r-lib` bookdown.yaml

5.2 Prerequisite

- The action will require a *renv* environment.
- Book to build (you can also use the faithful geyser example).

5.3 Steps

- Create your book using `renv` (The yaml use assume `renv` is used).
- Try to build your book `styler::style_pkg()`
  - While this step is not really necessary, it is to make sure your tests runs once and any further problems do not come from the tests.
- Add the check-release.yaml `usethis::use_github_action("bookdown")`
  - You can change the styler::style_pkg to `styler::style_file` or `styler::style_dir`.

```
  - name: Style
    run: styler::style_pkg(filetype = c(".R", ".Rmd", ".Rmarkdown", ".Rnw"))
    shell: Rscript {0}
```

  - More info and customisation on the package page.

- Push!

Chapter 6

Shiny deploy

6.1 shiny-deploy

Quick how to set a github action for a shiny deployment each time there is merge into the **main** (or **master**) branch using `r-lib` shiny-deploy.yaml

6.2 Prerequisite

Make sure you have the rsconnect information.

- https://shiny.rstudio.com/articles/shinyapps.html
- The action will require a *renv* environment.
- App to deploy (you can also use the faithful geyser example).

6.3 Steps

- Create your app using `renv` (The yaml use assume `renv` is used).
  - *It is probably also a best practice to use renv.*
- Try to deploy your app (either with the publish/redeploy button) or `rsconnect::deployApp()`
  - While this step is not really necessary, it is to make sure your app runs once and any further problems do not come from the app itself.
- Add a description `usethis::use_description(check_name = F)`.

  - *`check_name = F` to avoid checking name valid for CRAN.*

- Add the shiny-deploy.yaml `usethis::use_github_action("shiny-deploy.yaml")`
- Edit the shiny-deploy.yaml, especially the following part.
  - You can either fill in for the APPNAME, ACCOUNT, SERVER.

```yaml
- name: Authorize and deploy app
  env:
    # Provide your app name, account name, and server to be deployed below
    APPNAME: your-app-name
    ACCOUNT: your-account-name
    SERVER: shinyapps.io # server to deploy
  run: |
    rsconnect::setAccountInfo("${{ secrets.RSCONNECT_USER }}", "${{ secrets.RSCO
    rsconnect::deployApp(appName = "${{ env.APPNAME }}", account = "${{ env.ACCO
  shell: Rscript {0}
```

  - Or you can remove the `env` block and change the `rsconnect::deployApp` call.

```yaml
- name: Authorize and deploy app
  run: |
    rsconnect::setAccountInfo("${{ secrets.RSCONNECT_USER }}", "${{ secrets.RSCO
    rsconnect::deployApp()
  shell: Rscript {0}
```

- Add 3 secrets in the repository to store you account, token and secret (see prerequisite). They should have those names
  - `RSCONNECT_USER`, `RSCONNECT_TOKEN`, and secret `RSCONNECT_SECRET`
  - You can follow these guides if needed
- Link the shiny app folder to the github repo (add the remote and origin) (if you have not done it already).
- Push!