



Introduction to Travis CI
with git and GitHub
with a focus on developing a software pipeline

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www.github.com/richelbilderbeek/CppPresentations



Continuous worries

I saw your GitHub Issue
and I've submitted a Pull Request
with a fix.



haxxorsid



Mr Worry by Roger Hargreaves

Continuous worries

I cannot get your code to run.
I think it is broken.
Please help!



N00bG1rl



Mr Worry by Roger Hargreaves

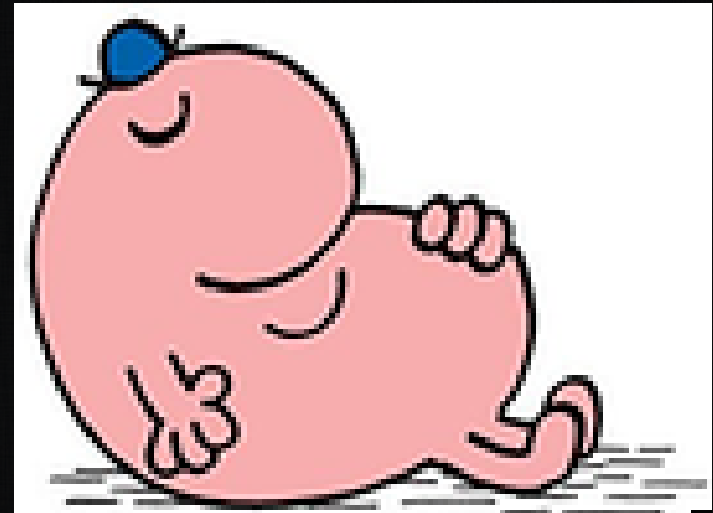
Continuous worries

Do I really need to do this
every time?

Yes, I should



*Mr Perfect,
by Roger Hargreaves*



*Mr Lazy,
by Roger Hargreaves*

Continuous solution

I can do all bash commands you like
every time you push

- Test if nothing breaks
- Test if pipeline works
- Gather diagnostics
- Other goodies



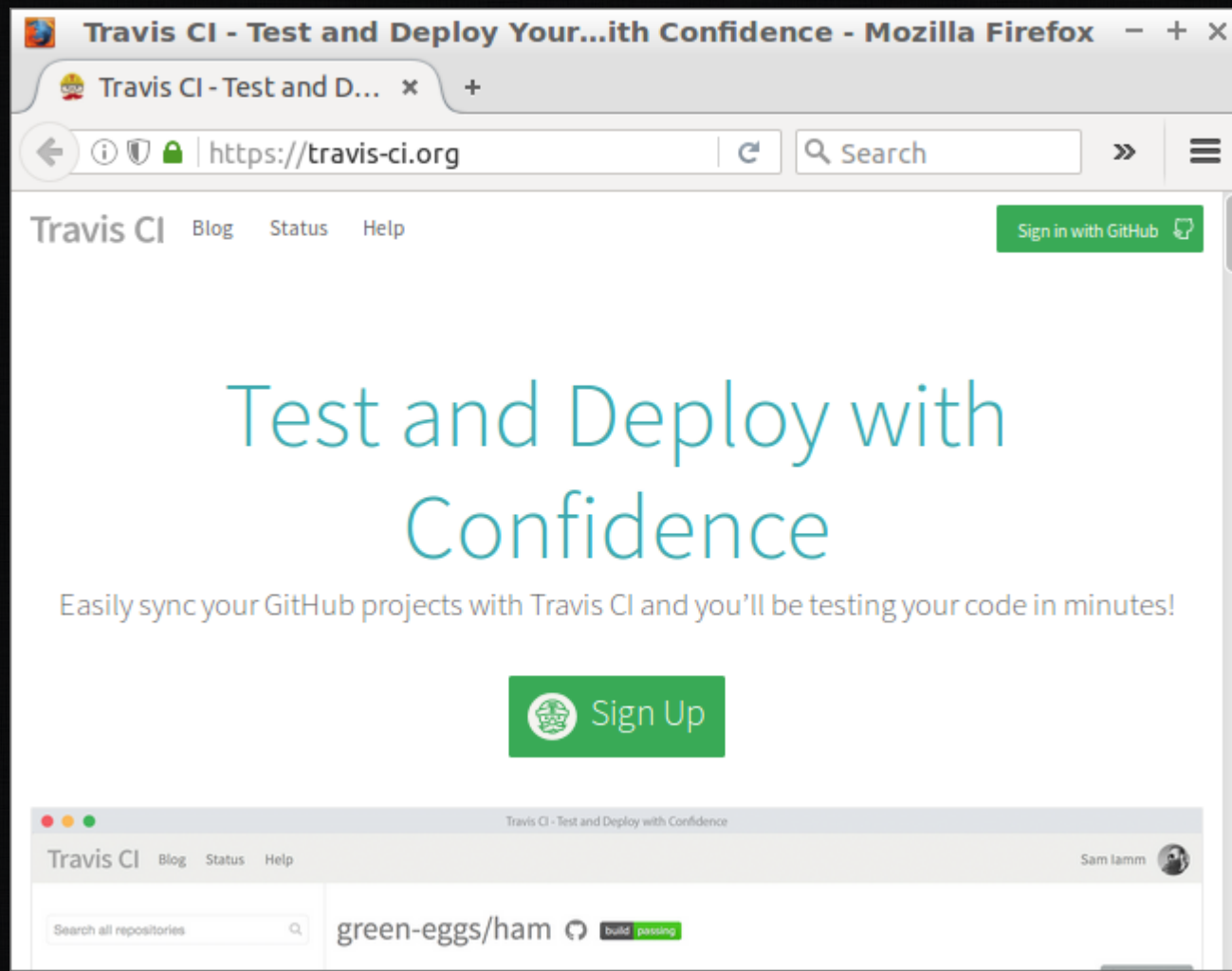
Overview

- Activate Travis
- Configure Travis file
- Push to GitHub



Activate Travis

- Go to <https://travis-ci.org>



Activate accounts

Richel Bilderbeek - Profile - Travis CI - Mozilla Firefox

Richel Bilderbeek - P... x +

https://travis-ci.org/profile/richelbi Search

Travis CI Blog Status Help Richel Bilderbeek

Richel Bilderbeek
Repositories 453
Token:

[Sync account](#)

We're only showing your public repositories. You can find your private projects on [travis-ci.com](#).

Organizations

- Hive5**
Repositories 4
- BEAST2-Dev**
Repositories 16
- DIYbio Groningen**
Repositories 11
- LucKey Productions**
Repositories 12

Is an organization missing?
[Review and add your authorized organizations.](#)

1 **tra**
Click the repository switch on

2 **tra**
Add .travis.yml file to your repository

3 **tra**
Trigger your first build with a git push

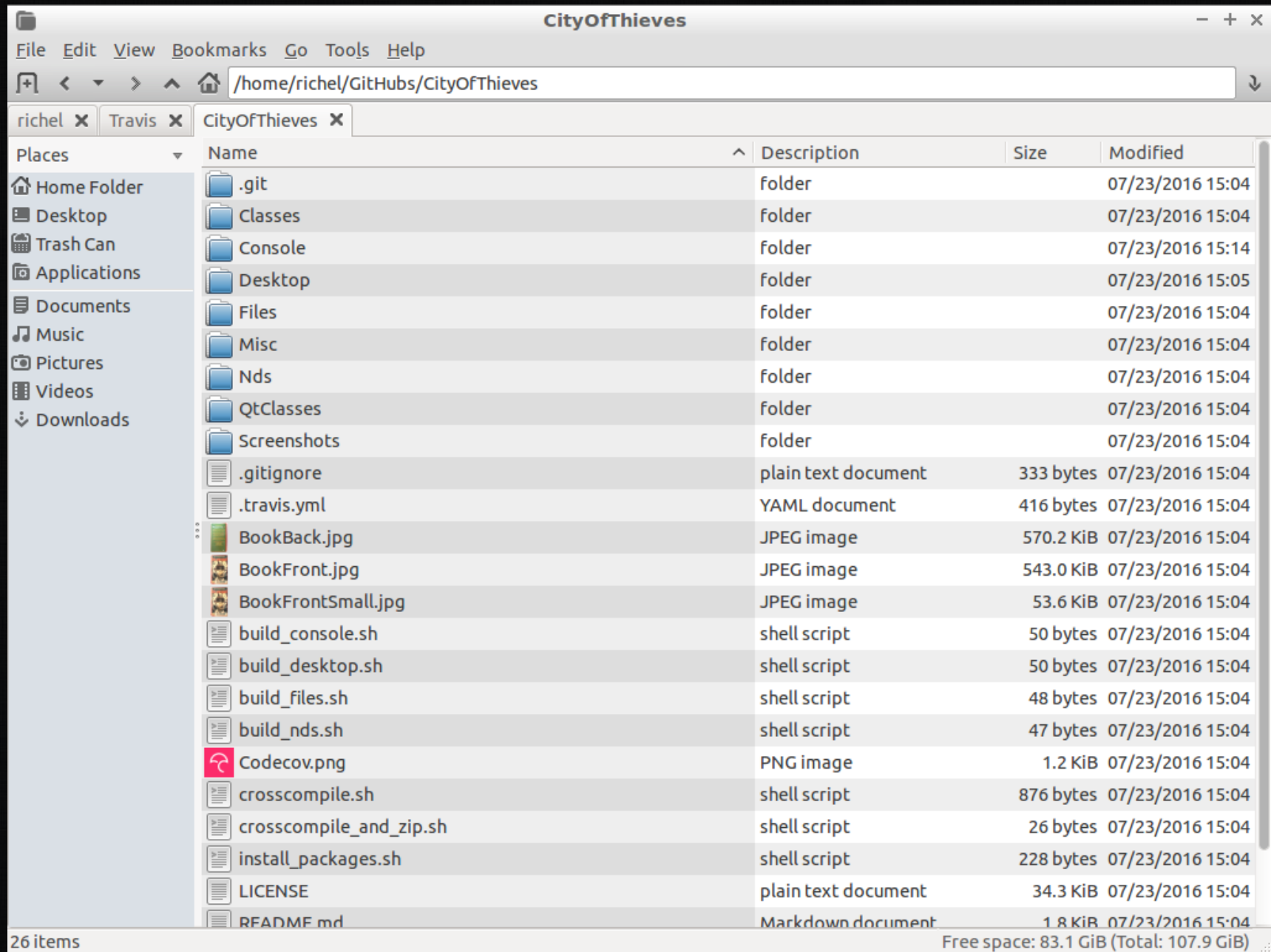
☒ richelbilderbeek/AminoAcidFighter

☐ richelbilderbeek/Android

☐ richelbilderbeek/Apfloat

☐ richelbilderbeek/ApplicationVerifierExamples

Configure Travis files



.travis.yml

- 'Yet another Markup Language'
- Just use the bash scripts you would use in the 'script' section



Example .travis.yml

```
script:
```

- echo "Hello"
- ls



Result

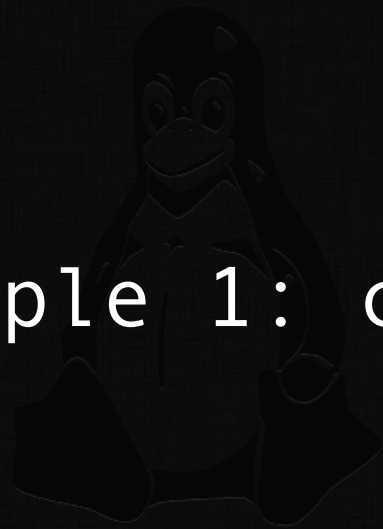
```
135 $ echo "Hello"
136 Hello
137
138
139 The command "echo "Hello"" exited with 0.
140 $ ls
141 LICENSE  README.md
142
143
144 The command "ls" exited with 0.
145
146 Done. Your build exited with 0.
```


How to get a more complex .travis.yml file

- Go to
https://github.com/richelbilderbeek/travis_cpp_tutorial
- Copy the best fitting Travis configuration file

More examples

- `proselint`
- `cowsay`
- `convert`
- pipeline example 1: `convert image to cowfile`



proselint

- Python tool that tests prose for style errors
- Put prose in file called 'my_prose.md'
- From https://github.com/richelbilderbeek/travis_proselint



my_prose.md

I do not want this poem to go too deep. It's premature, and love's too far away. But there are things I feel the need to say rather than more days of silence keep. I hope for you it's not too great a leap To hear me talking to you in this way. My fears sometimes my sentiments betray, telling me to put my thoughts to sleep. Ever since we met I've thought of you as something more than just a passing friend. You seem so lovely, like a melody that haunts me with the wisp of something true. You haunt me still, and so I won't pretend: I tell you this that you might think of me.

.travis.yml

```
sudo: require
```

```
install:
```

```
- sudo pip install proselint
```

```
script:
```

```
- proselint my_prose.md
```



Result

```
▶ 129 $ sudo pip install proselint
153 $ proselint my_prose.md
154 my_prose.md:2:41: misc.but No paragraph should start with a 'But'.
155
156
157 The command "proselint my_prose.md" exited with 1.
158
159 Done. Your build exited with 1.
```


cowsay

- Command-line tool to let a cow (or other ASCII art) say something
- From https://github.com/richelbilderbeek/travis_cowsay



.travis.yml

```
sudo: require
```

```
install:
```

- sudo apt-get install cowsay
- export PATH=/usr/bin:/bin:/usr/games

```
script:
```

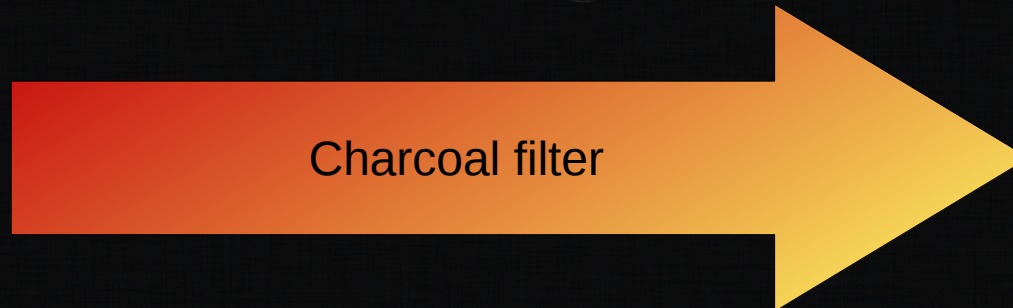
- cowsay "Howdy" | cowsay -n -f stegosaurus

Result

```
325 $ cowsay "Howdy" | cowsay -n -f stegosaurus
326
327 / _____ \
328 | < Howdy > |
329 | ----- |
330 |          \  ^__^  |
331 |          \  (oo)\_____|
332 |              (__)\       )\/\ |
333 |                  ||----w |
334 |                  ||     ||
335 |-----|
336 |
337 |               / \  "
338 |             .---. < > < > .---.
339 |           |   \   \ - ~ ~ - /   / |
340 |           |   .--~           ~--..--~
341 |         |_____| \~~~\.'           \./~~~/
342 |         |-----| \___/           \___/
343 |         .' 0   \   /           /   \ "
344 |        (_____, \___/           /___/ } \./~~~/
345 |         \-----/           /           / \___/
346 |         \___/           /           / \___/ \___/
347 |         ~-._|           /_ - ~ ^| /_ - _ \___/
348 |         |           /           /           \___/
349 |         |_____|           |_____|           ~ - .----->
350
351
352 The command "cowsay "Howdy" | cowsay -n -f stegosaurus" exited with 0.
353
354 Done. Your build exited with 0.
```

convert

- Part of Imagemagick
- Command-line tool to work on images
- From https://github.com/richelbilderbeek/travis_convert



Lenna, from
<https://upload.wikimedia.org/wikipedia/en/2/24/Lenna.png>

.travis.yml

```
script:
```

- rm *.png
- ./run
- ls *.png



```
#!/bin/bash
```

```
wget https://upload.wikimedia.org/wikipedia/en/2/24/Lenna.png
```

```
convert Lenna.png -charcoal 1 Edge.png
```

Result

```
143 $ rm *.png
144
145
146 The command "rm *.png" exited with 0.
147 $ ./run
148 --2017-01-18 18:18:20-- https://upload.wikimedia.org/wikipedia/en/2/24/Lenna.png
149 Resolving upload.wikimedia.org (upload.wikimedia.org)... 208.80.154.240, 2620:0:861:ed1a::2:b
150 Connecting to upload.wikimedia.org (upload.wikimedia.org)|208.80.154.240|:443... connected.
151 HTTP request sent, awaiting response... 200 OK
152 Length: 473831 (463K) [image/png]
153 Saving to: `Lenna.png'
154
155 100%[=====>] 473,831      --.-K/s   in 0.01s
156
157 2017-01-18 18:18:21 (42.6 MB/s) - `Lenna.png' saved [473831/473831]
158
159
160
161 The command "./run" exited with 0.
162 $ ls *.png
163 Edge.png  Lenna.png
164
165
166 The command "ls *.png" exited with 0.
167
168 Done. Your build exited with 0.
```


Pipeline example 1

- Convert image to cowfile
- From https://github.com/richelbilderbeek/travis_example_pipeline



Lenna, from
<https://upload.wikimedia.org/wikipedia/en/2/24/Lenna.png>



.travis.yml 1/2

```
sudo: require
```

```
dist: trusty
```

```
# Boost
```

```
addons:
```

```
  apt:
```

```
    packages: libboost-all-dev
```

```
before_install:
```

```
  # C++14
```

```
  - sudo add-apt-repository --yes ppa:ubuntu-toolchain-r/test
```

```
  - sudo apt-get update -qq
```



.travis.yml 2/2

install:

C++14

- sudo apt-get install -qq g++-5

Cowsay

- sudo apt-get install cowsay

- export PATH=/usr/bin:/bin:/usr/games

script:

- ./run

run 1/3

```
#!/bin/bash
```

```
# Download Lenna.png
```

```
wget
```

```
https://upload.wikimedia.org/wikipedia/en/2/24/Lenna.png
```

```
# Convert to edge detected version
```

```
convert Lenna.png -charcoal 1 Edge.png
```

```
# Download prerequisites
```

```
git clone https://github.com/richelbilderbeek/AsciiArter
```

```
git clone https://github.com/richelbilderbeek/DotMatrix
```

```
git clone https://github.com/richelbilderbeek/RibiClasses
```

```
git clone https://github.com/richelbilderbeek/RibiLibraries
```


run 2/3

```
# Build AsciiArter
```

```
cd AsciiArter
```

```
qmake AsciiArterConsole.pro
```

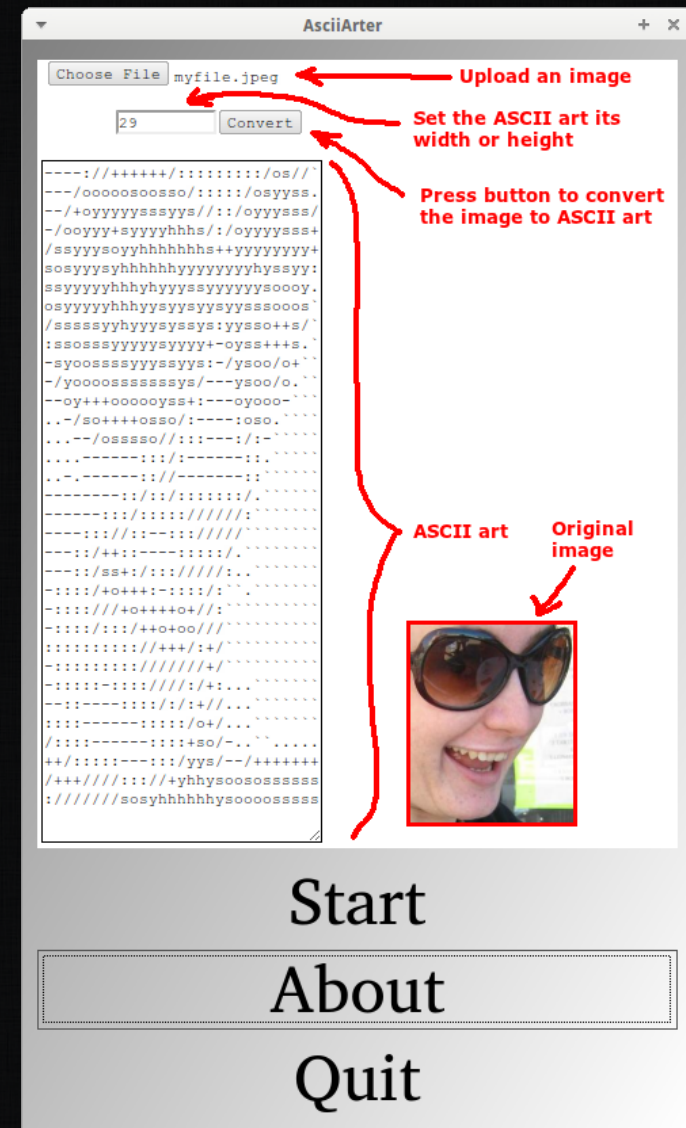
```
make debug
```

```
cp AsciiArterConsole ../
```

```
cd ..
```

```
# Convert Edge to ascii art
```

```
./AsciiArterConsole Edge.png  
art.txt 78
```



AsciiArter GUI menu, from
<https://github.com/richelbilde/rbeek/AsciiArter>

run 3/3

```
# Create cowfile
```

```
echo "\$the_cow = <<\\"EOC\\";" > art.cow
```

```
echo "  \$thoughts" >> art.cow
```

```
echo "  \$thoughts" >> art.cow
```

```
cat art.txt >> art.cow
```

```
echo "EOC" >> art.cow
```

```
# Use cowfile
```

```
cowsay -f ./art.cow "Hello!"
```


Other uses



Conclusion

- Travis CI can be used to
 - Reproduce a build process
 - Improve code quality
 - Education

