
UNIC-CASS Mentoring Session

75 YEARS



Perform Precheck & tapeout for Digital Designs on Efabless Platform

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Precheck submission steps

01 Create and clone `caravel_user_project_wrapper` repository

02 Upload your Design to Efabless Platform

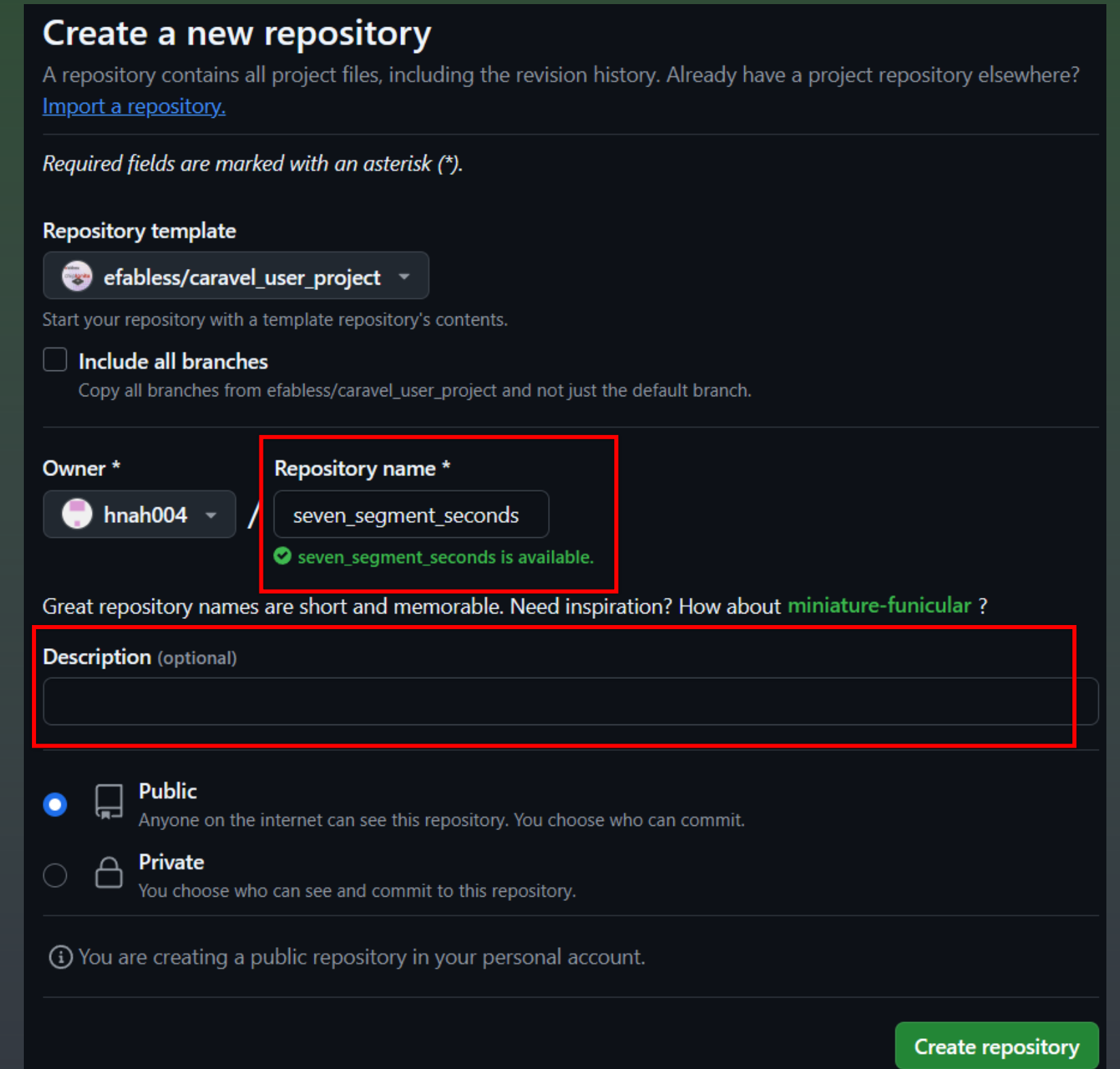
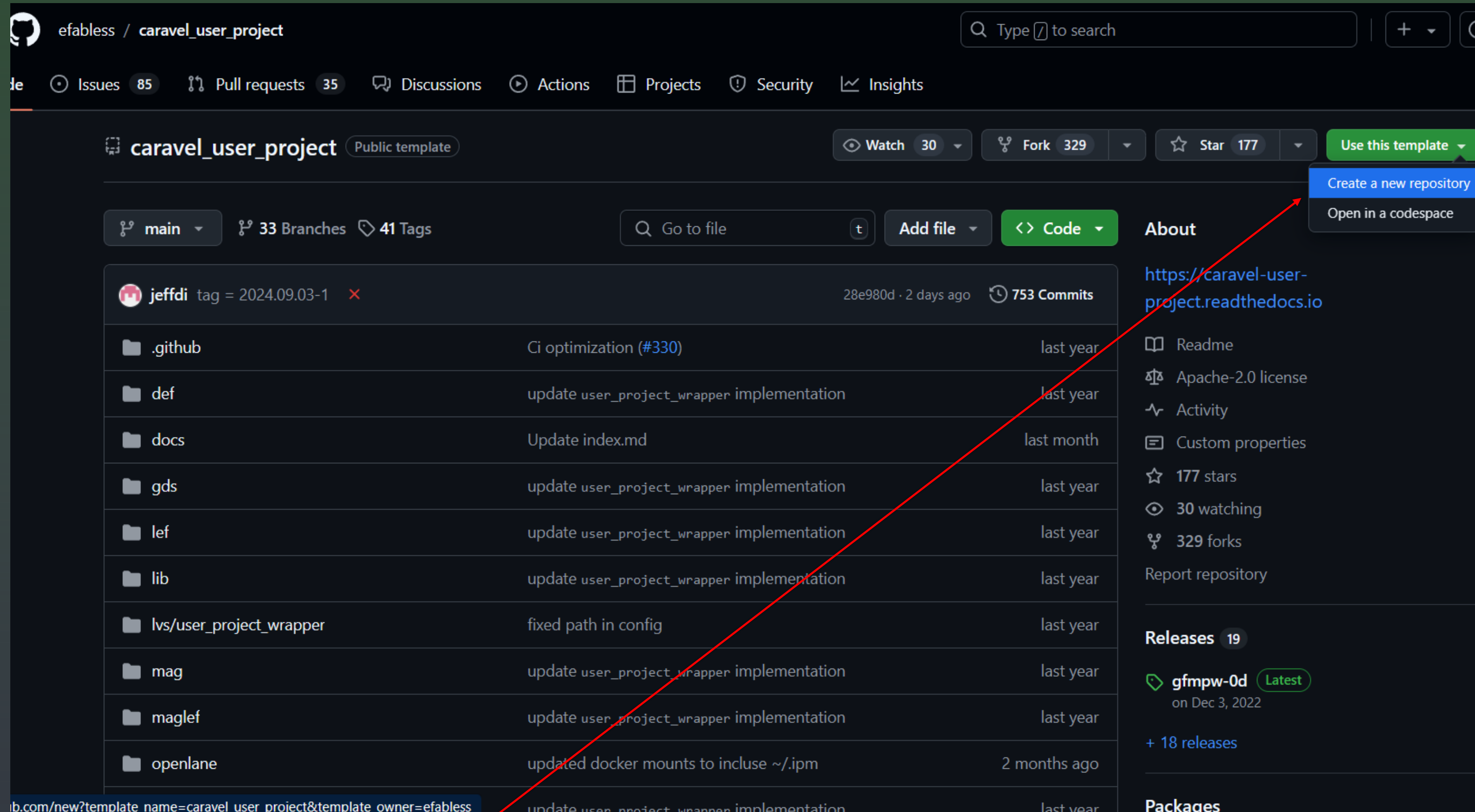
03 Submit Precheck and Tapeout Jobs

The educational material: <https://unic-cass.github.io/>

Before you begin: Important references

- ❑ Set up docker & environment:
<https://unic-cass.github.io/training/2.1-digital-design-tool-docker.html>
- ❑ Set up Caravel User Project:
<https://unic-cass.github.io/training/4.3-design-setup-caravel-user-project.html>
- ❑ Integrate your own design:
<https://unic-cass.github.io/training/4.5-integrate-your-design.html>
- ❑ Run Precheck locally:
<https://unic-cass.github.io/training/4.6-run-precheck.html>
- ❑ VHDL design:
<https://unic-cass.github.io/training/4.7-synthesis-vhdl-design.html>
- ❑ Prepare design for tapeout:
<https://unic-cass.github.io/training/06-design-for-tapeout.html>

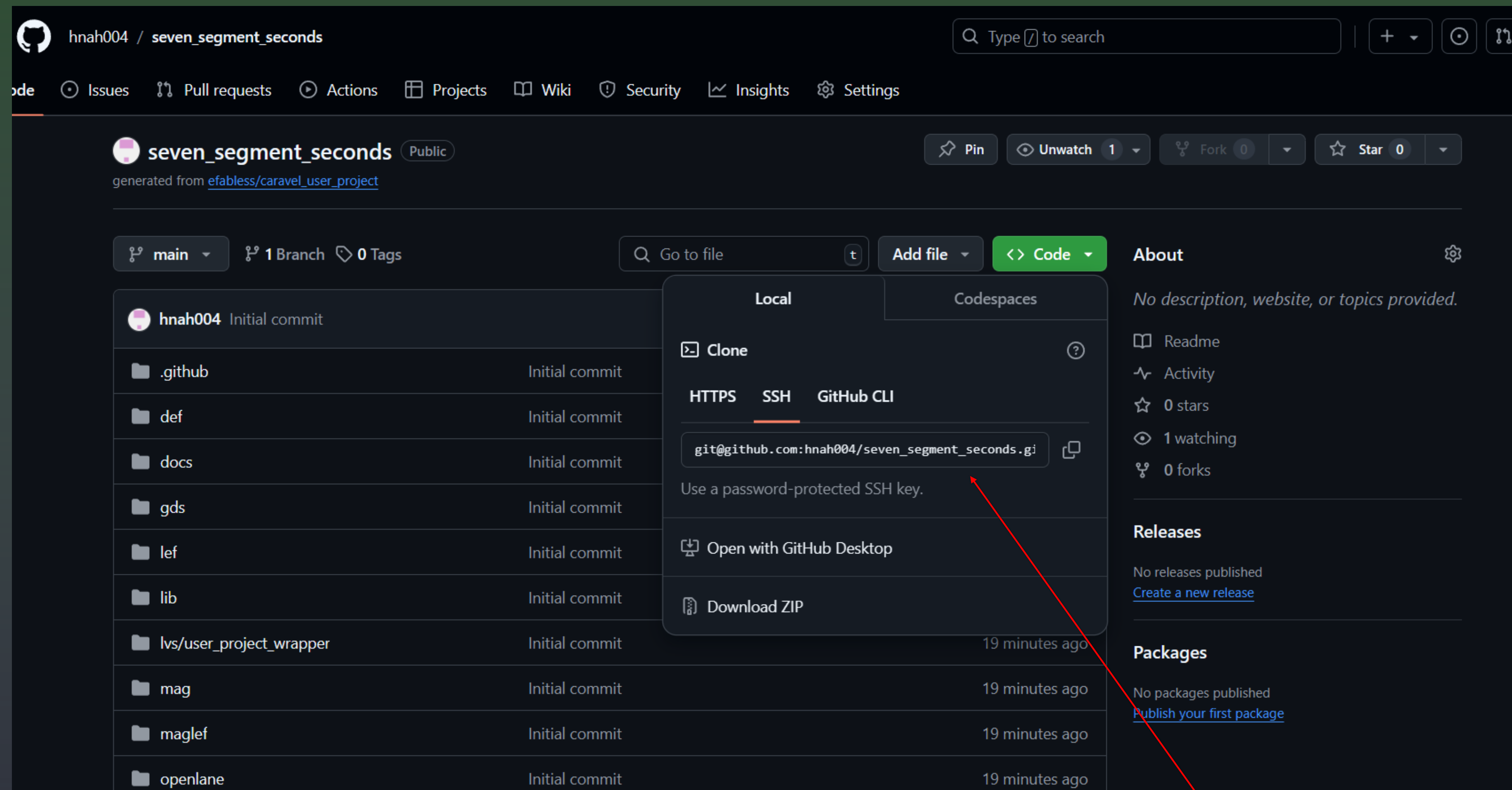
1. Create and create a repository: create a repository from a template



- Create a new repository based on the template

Ref: <https://unic-cass.github.io/training/6.3-design-for-tapeout-Caravel-create-repo.html>

1. Create and clone a repository: clone the repository



hnah004 / seven_segment_seconds

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

seven_segment_seconds Public

generated from [efables/caravel_user_project](#)

main 1 Branch 0 Tags

Go to file

Add file Code

Local Codespaces

Clone

HTTPS SSH GitHub CLI

git@github.com:hnah004/seven_segment_seconds.git

Use a password-protected SSH key.

Open with GitHub Desktop

Download ZIP

About

No description, website, or topics provided.

Readme Activity 0 stars 1 watching 0 forks

Releases

No releases published

[Create a new release](#)

Packages

No packages published

[Publish your first package](#)

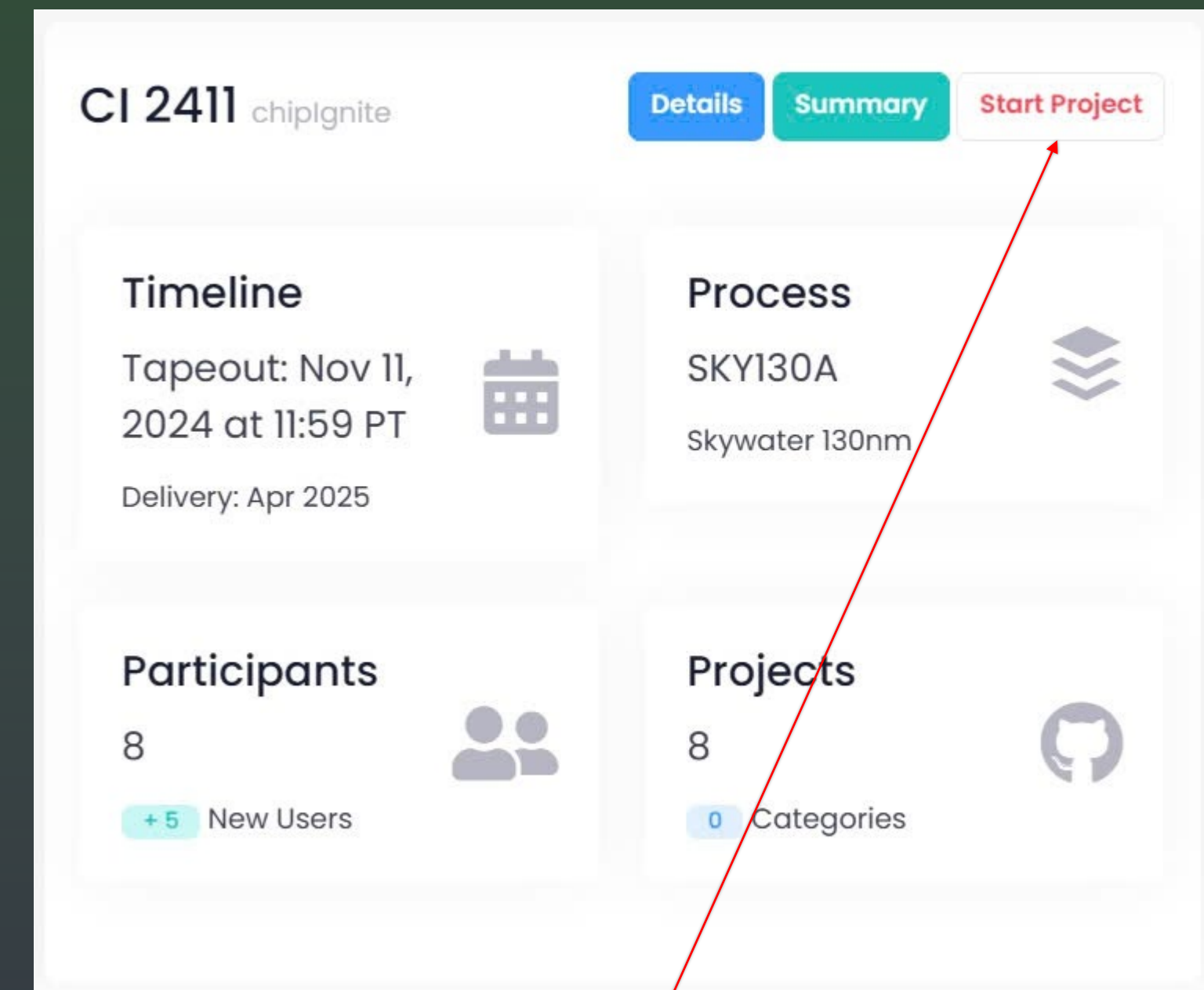
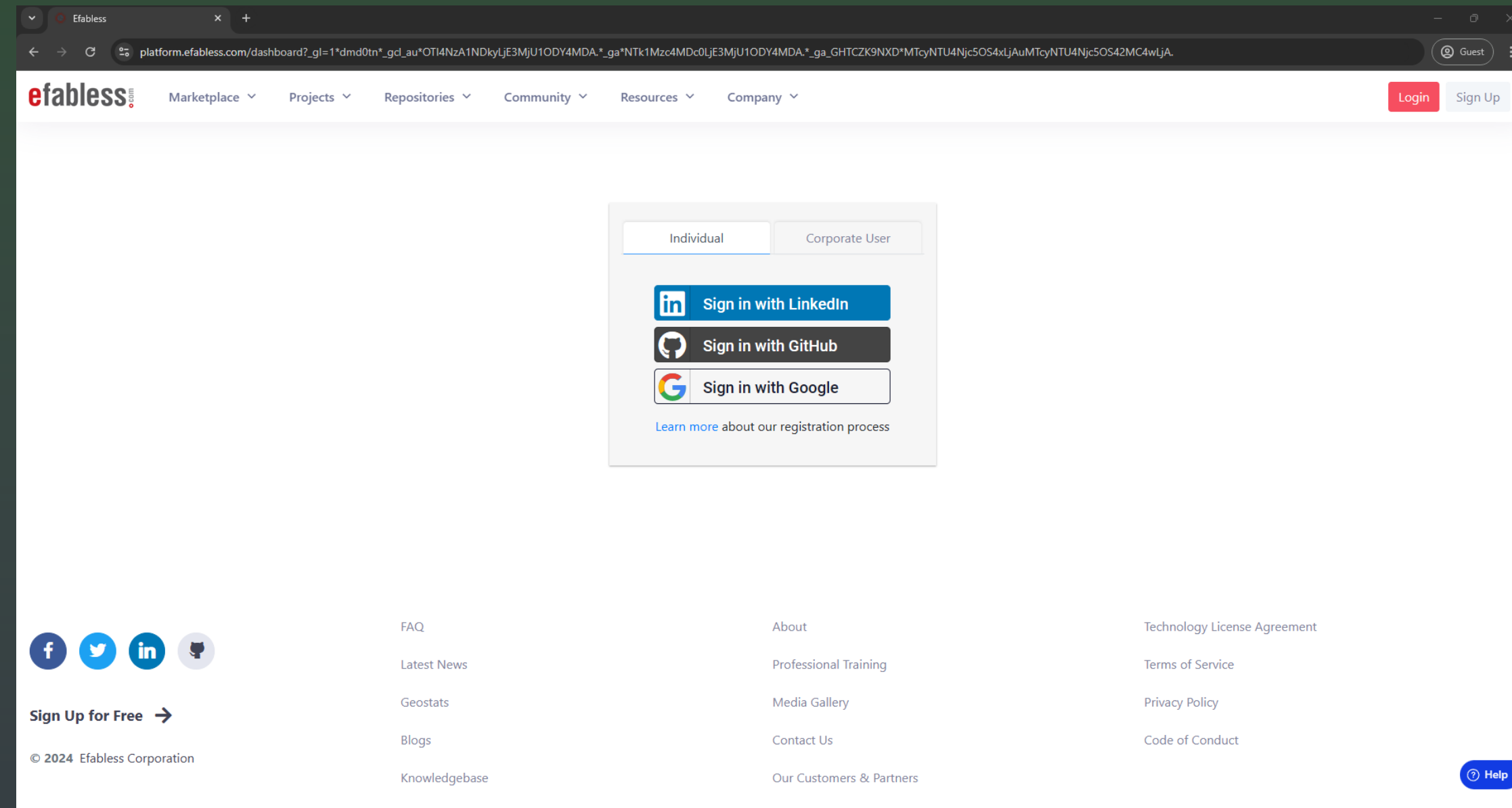
File	Commit	Time
hnah004	Initial commit	
.github	Initial commit	
def	Initial commit	
docs	Initial commit	
gds	Initial commit	
lef	Initial commit	
lib	Initial commit	
lvs/user_project_wrapper	Initial commit	19 minutes ago
mag	Initial commit	19 minutes ago
maglef	Initial commit	19 minutes ago
openlane	Initial commit	19 minutes ago

```
$ git clone git@github.com:hnah004/seven_segment_seconds.git
```

Reference:

- Upload design: <https://unic-cass.github.io/training/6.3-design-for-tapeout-Caravel-create-repo.html>

2. Upload your design: Start Project



- Go to <https://platform.efabless.com/>
- Log in via Github, LinkedIn or Google
- Scroll down to "Active Shuttles" and select "CI 2411"

- In the main page, search for a shuttle
- Click on "Start Project"

Reference:

- Upload design: <https://unic-cass.github.io/training/6.5-design-for-tapeout-Caravel-upload-design.html>

2. Upload your design: fill in project information

PROJECT

Project Title *

Visibility *

Private ▾

Description *

(Give us your elevator pitch!)

URL

Shuttle CI 2411

Labels ?

Cover Image (This is what the public can see when searching)

Choose file to upload Choose File

Save Cancel

- Add Project Title: UNIC-CASS-24-<PROJECT-NAME>
- Choose Visibility (preferably Public)
- Add Short Description
- Add URL (optional)
- Add labels and an image(optional)

Then click the "Save" button

Reference:

- Generate & config the ssh key: <https://unic-cass.github.io/training/6.7-design-for-tapeout-Caravel-create-ssh-key.html>
- Upload design: <https://unic-cass.github.io/training/6.5-design-for-tapeout-Caravel-upload-design.html>

2. Upload your design

```
$ git remote add ef-repo ssh://git@repositories.efabless.com/hnah004/test.git  
$ git push -u ef-repo main --force # must set up the ssh key before running
```

Instructions

Local Project Setup - Git Commands

If you are starting a brand new project without a local repository, here are the suggested Git commands:

```
git clone ssh://git@repositories.efabless.com/hnah004/test.git  
cd test  
... do some changes  
git push -u origin main
```

If you already have a local Git repository, initialized with `git init`, you will need to associate your local repository with the Efabless Repository remote location. The following Git commands will add Efabless Repository as a remote repository and push your changes to the main branch.

```
git remote add origin ssh://git@repositories.efabless.com/hnah004/test.git  
git pull origin main --rebase --allow-unrelated-histories  
git push -u origin main
```

If you already have a remote repository, for example one on GitHub, use the Git command below to add another remote Git repo (make sure that each repo has its unique ID, e.g. `origin`, `ef-repo` in the example below).

```
git remote add ef-repo ssh://git@repositories.efabless.com/hnah004/test.git  
git push -u ef-repo main --force
```

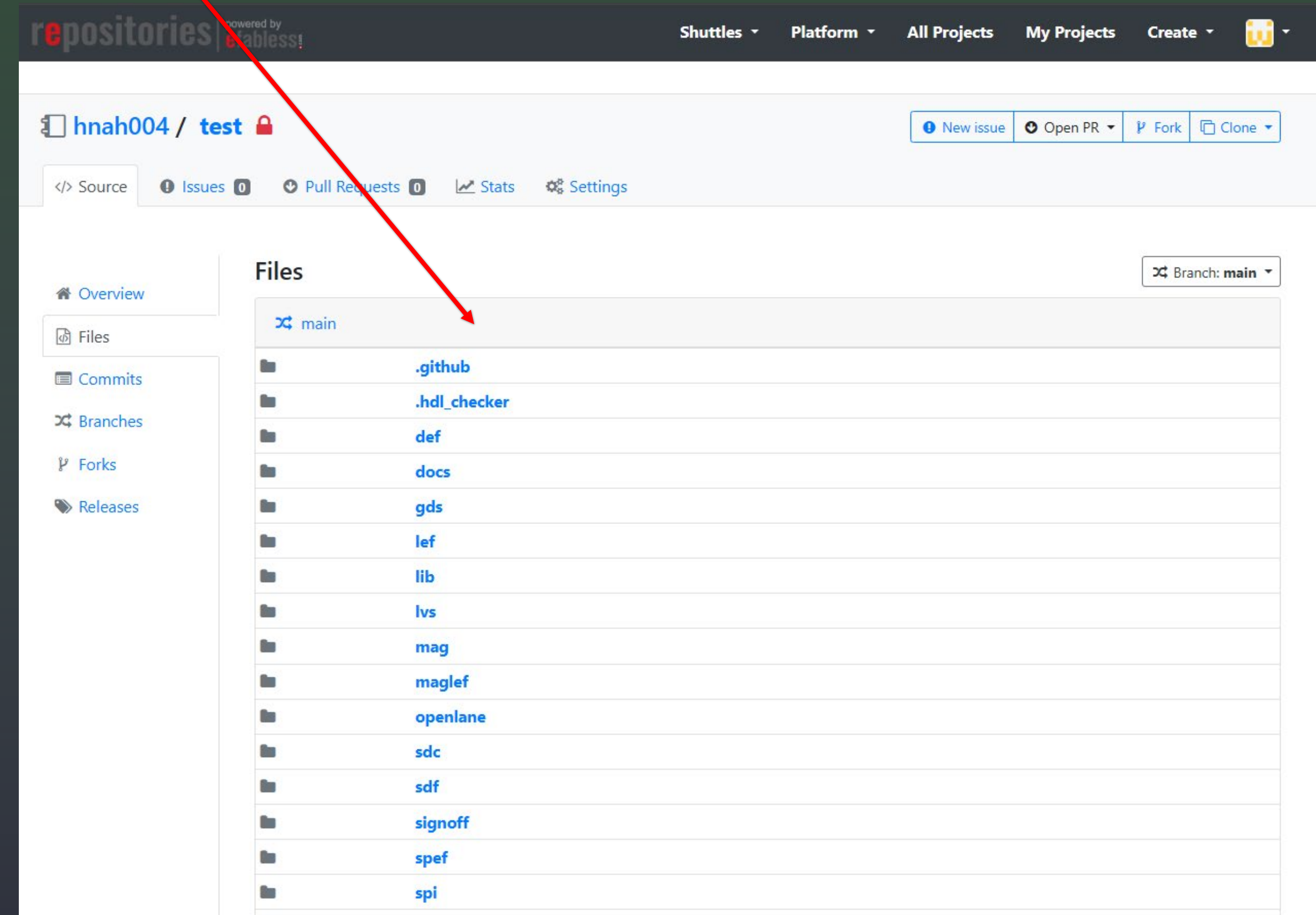
How To Update Your Project Cover Image

A default cover.png has already been added to the root directory of this remote repository.

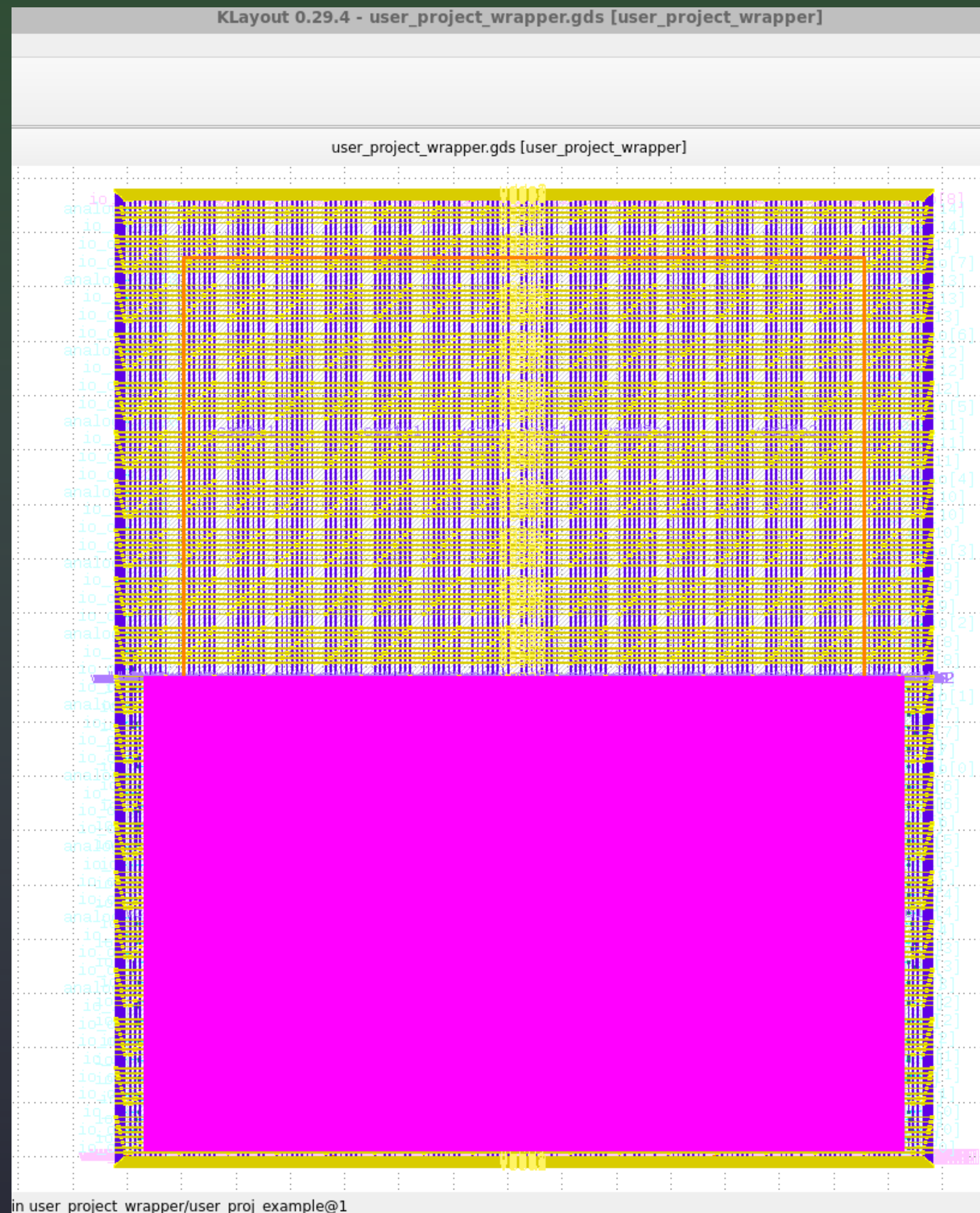
If your project is not private, this image can be viewed in the [project search results list](#).

To show your own cover image, replace cover.png with a file called 'cover' and an allowed image extension ('.jpg', '.jpeg', '.png', '.gif', '.webp') and then push your changes.

(Maximum allowed file size: 1 MB)



3. Submit Precheck and Tapeout Jobs



CI 2409 | chipignite Shuttle Service

Summary Projects (35) Announcements (0) Manage My Submissions

hnah004/test Add another project to Shuttle +

Actions: View Project | Edit Project | Add Project to Another Shuttle | Remove Project from CI 2409 Shuttle

MPW Precheck	Incomplete ✖	Submit
Tapeout	Incomplete ✖	Submit
Shipping Address	Incomplete ✖	Edit
Billing Address	Incomplete ✖	Edit
Legal	Complete ✔	
Submission	Incomplete ✖	Submit

No messages yet.

Type a message...

- Navigate to "Manage my submissions"
- You need to have all these items **green**

3. Submit Precheck and Tapeout Jobs: launch

Launch Precheck

MPW Precheck	Incomplete ✖	Submit	^
Tapeout	Incomplete ✖	Submit	^
Shipping Address	Incomplete ✖	Edit	^
Billing Address	Incomplete ✖	Edit	^
Legal	Complete ✔		^
Submission	Incomplete ✖	Submit	^

Submit MPW Precheck

Job Name (Required) *

Skip LVS

Submit

- Click the "Submit"
- Ideal: use commit code for precheck/tapeout job name

hnh004/test Add another project to Shuttle +

Actions: View Project | Edit Project | Add Project to Another Shuttle | Remove Project from CI 2409 Shuttle

MPW Precheck	Complete ✔	Re-Submit	^
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Filter results...

ID	Name	Start	End	Status	Actions
d90b5b4e...	Precheck	09/05/24 23:49:23 PDT	09/06/24 00:45:20 PDT	succeeded	Logs Request Job Data

Ref: <https://unic-cass.github.io/training/6.6-design-for-tapeout-Caravel-submit-precheck-tapeout-job.html>

3. Submit Precheck and Tapeout Jobs: complete with success

Actions: [View Project](#) | [Edit Project](#) | [Add Project to Another Shuttle](#) | [Remove Project from CI 2409 Shuttle](#)

MPW Precheck	Complete ✓	Re-Submit	^
Tapeout	Complete ✓	Submit	^
Shipping Address	Incomplete ✘	Edit	^
Billing Address	Incomplete ✘	Edit	^
Legal	Complete ✓		^
Submission	Incomplete ✘	Submit	^

- If any job fails you can request run data for debugging

Job Logs for Precheck (d90b5b4e-a58c-4e6c-a6e8-7dfa14d03d89)

```

STDOUT: LVS_NOFLATTEN :
STDOUT: LVS_IGNORE :
STDOUT: LVS_SPICE_FILES : /opt/pdks/sky130A/libs.ref/sky130_fd_sc_hd/spice/sky130_ef_sc_hd__decap_12.spice
/opt/pdks/sky130A/libs.ref/sky130_fd_sc_hd/spice/sky130_fd_sc_hd.spice
STDOUT: LVS_VERILOG_FILES : test.git/verilog/gl/user_proj_example.v test.git/verilog/gl/user_project_wrapper.v
STDOUT: LAYOUT_FILE : test.git/gds/user_project_wrapper.gds
STDOUT: run: run_be_checks
STDOUT: LVS output directory: /mnt/users_data/jobs/hnah004/test/d90b5b4e-a58c-4e6c-a6e8-7dfa14d03d89
STDOUT: {{LVS CHECK PASSED}} The design, user_project_wrapper, has no LVS violations.
STDOUT: {{FINISH}} Executing Finished, the full log 'precheck.log' can be found in '/mnt/users_data/jobs/hnah004/test/d90b5b4e-a58c-4e6c-a6e8-7dfa14d03d89/logs'
STDOUT: {{SUCCESS}} All Checks Passed !!!
  
```

Job Logs for tapeout (47c80834-d3b1-45d0-8605-e8c890c021d0)

```

STDOUT: {{Step Update}} Executing Check 3 of 7: Klayout Front End Of Line on [caravel_2409a71b.oas]
STDERR: [ WARN ] FEOL Check Result: 'caravel_2409a71b.oas' has 0 DRC violations.
STDOUT: {{Step Update}} Executing Check 4 of 7: Klayout Back End Of Line on [caravel_2409a71b.oas]
STDERR: [ WARN ] BEOL Check Result: 'caravel_2409a71b.oas' has 0 DRC violations.
STDOUT: {{Step Update}} Executing Check 5 of 7: Klayout Offgrid on [caravel_2409a71b.oas]
STDERR: [ WARN ] OFFGRID Check Result: 'caravel_2409a71b.oas' has 0 DRC violations.
STDOUT: {{Step Update}} Executing Check 6 of 7: Klayout Metal Minimum Clear Area Density on [caravel_2409a71b.oas]
STDERR: [ WARN ] MET Density Check Result: 'caravel_2409a71b.oas' has 0 DRC violations.
STDOUT: {{Step Update}} Executing Check 7 of 7: Klayout Field Oxide Mask Density on [caravel_2409a71b.oas]
STDERR: [ WARN ] FOM Density Check Result: 'caravel_2409a71b.oas' has 0 DRC violations.
STDOUT: {{FINISH}} Execution Finished, the full logs can be found in hnah004/test/jobs/tapeout/47c80834-d3b1-45d0-8605-e8c890c021d0/logs
  
```

Ref: <https://unic-cass.github.io/training/6.6-design-for-tapeout-Caravel-submit-precheck-tapeout-job.html>

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