



Nova 2022

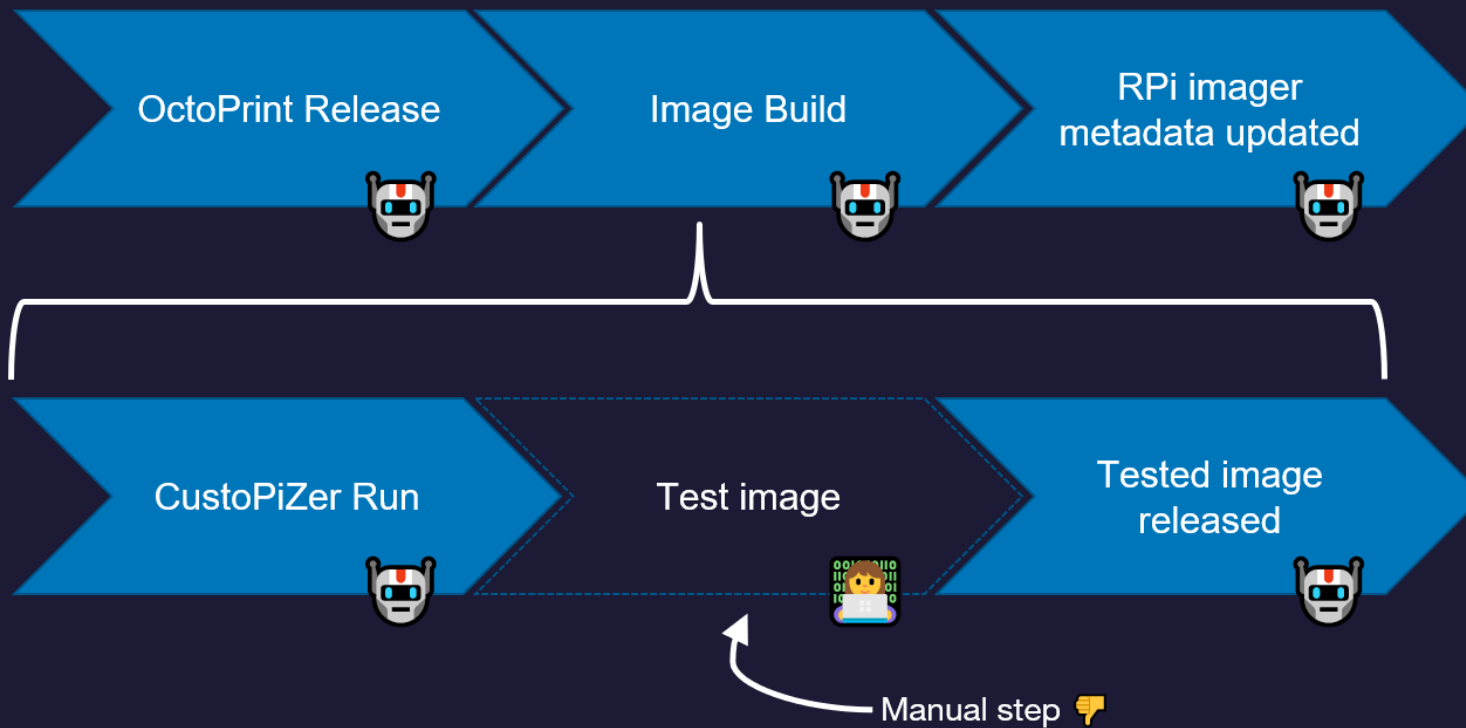
Tying custom hardware testing into GitHub Actions



Starting situation

- Update existing RPi image for OctoPrint on each release
 - 👉 OctoPrint/CustoPiZer
 - Image generation, preparation of input file for RPi image flashing tool
 - Talk @ Universe 2021: “RPi image customization with GitHub Actions”
- Problem: Test before deployment? 😞





The Testrig™

- Built in 2020
- Used in OctoPrint's release testing
- One RPi 4 (flashhost), 3 RPi 3s (DUTs)
- 🙌 OctoPrint/devtools



I've got an idea...

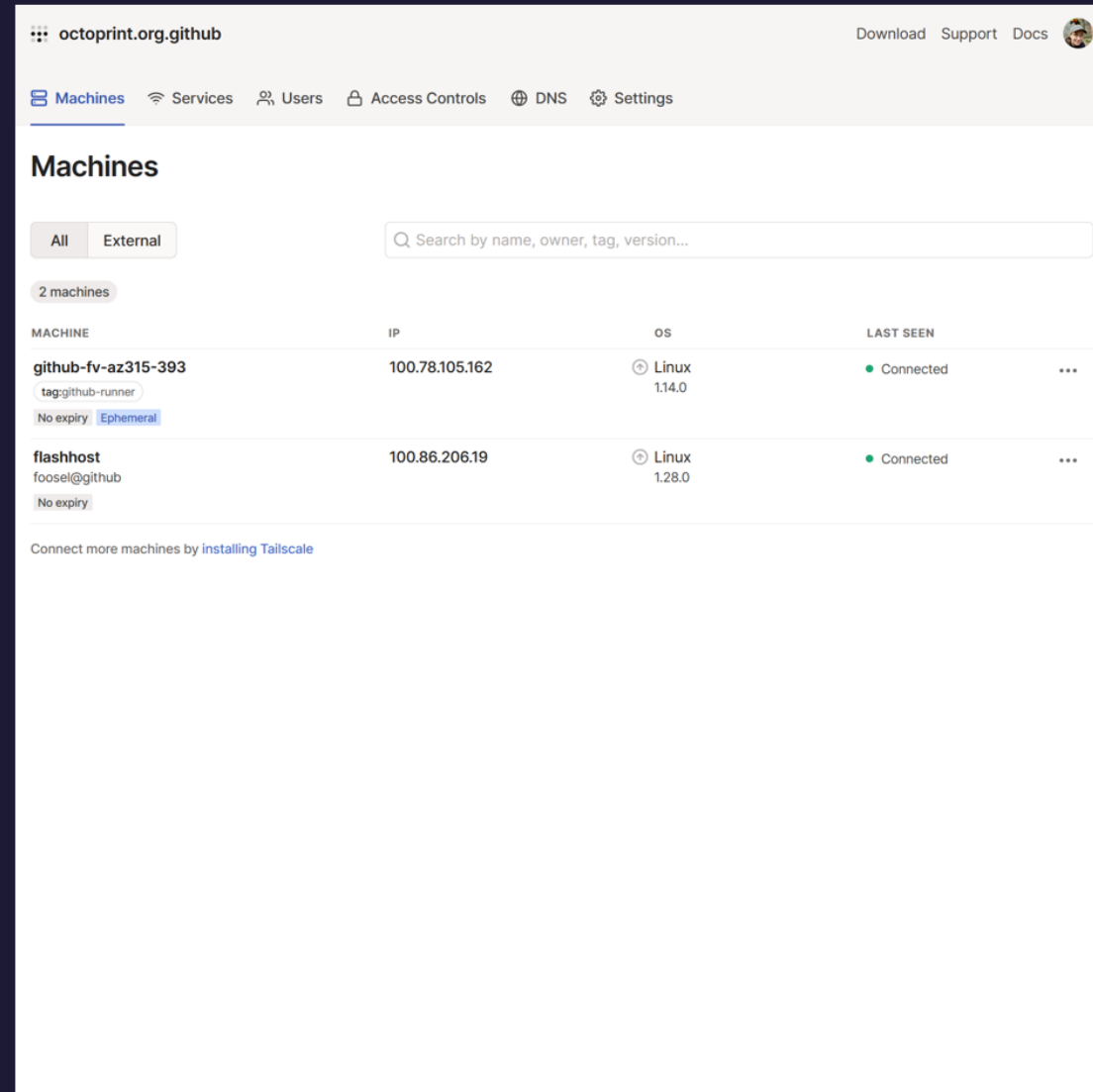


- Tailscale for network access
- Custom flashhost user & shell
- Workflow that gets remotely triggered by image build
 - Flashes & provisions image, preconfigures OctoPrint, runs available E2E test suite
- All green? Confirm & deploy in production!



Initial setup 1/2

- Tailscale network
 - flashhost & runner
 - port 22 & port 80
 - reusable & ephemeral auth key for runner



octoprint.org.github Download Support Docs

[Machines](#) [Services](#) [Users](#) [Access Controls](#) [DNS](#) [Settings](#)

Machines

All External

2 machines

MACHINE	IP	OS	LAST SEEN
github-fv-az315-393 tag:github-runner No expiry Ephemeral	100.78.105.162	Linux 1.14.0	Connected
flashhost foosel@github No expiry	100.86.206.19	Linux 1.28.0	Connected

Connect more machines by [installing Tailscale](#)



Initial setup 2/2

- Custom flashhost user & shell
- new user “fab”
- custom shell, only devtools
- SSH key used by runner

```
Linux flashhost 5.4.51-v71+ #1327 SMP Thu Jul 23 11:04:39 BST 2020 armv7l

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Wed Sep 21 11:57:25 2022 from 192.168.1.5

TARGET:
TAG:

fab shell. Hit Ctrl+D to exit

fab> flashhost_list_images
[pi@flashhost.lan] Executing task 'flashhost_list_images'
Available images:
 0.15.0
 0.15.1
 0.16.0
 0.17.0
 0.17.0-py3
 0.18.0-1.8.0rc5
 0.18.0-1.8.2
 0.18.0
 0.18.0-latest
 1.0.0rc1-32bit
 1.0.0rc1-64bit
 1.0.0rc2-32bit

Done.
Disconnecting from flashhost.lan... done.
fab> █
```



Tailscale & SSH

```
– □ ×  
  
- name: "🔑 Install SSH key in agent"  
  uses: shimataro/ssh-key-action@v2  
  with:  
    key: ${{ secrets.DEPLOY_KEY }}  
    known_hosts: ${{ secrets.DEPLOY_KNOWN_HOSTS }}  
  
- name: "🌐 Connect to tailscale network"  
  uses: tailscale/github-action@v1  
  with:  
    authkey: ${{ secrets.TAILSCALE_AUTHKEY }}
```



Deployment on Testrig


```

- name: "🔥 Flash & provision image"
  env:
    TARGET: ${{ github.event.inputs.target }}
    IMAGE: ${{ env.IMAGE }}
  run: |
    ssh -o SendEnv=TARGET fab@flashhost flashhost_flash_and_provision:$IMAGE octopi_wait:headless=1



- name: "🐙 Preconfigure OctoPrint"
  env:
    TARGET: ${{ github.event.inputs.target }}
  run: |
    ssh -o SendEnv=TARGET fab@flashhost octopi_test_provisioned:headless=1,config=configs/e2e

```



 Summary

















Jobs

  Deploy

  E2E

Deploy

succeeded 6 minutes ago in 7m 52s

- >  Set up job
- >   Install SSH key in agent
- >   Connect to tailscale network
- >   Check if tailscale is running
- >   Determine image
- >   Flash & provision image
- >   Preconfigure OctoPrint
- >   Clean up if needed
- >  Complete job

E2E testing

```

- name: "↓ Checkout latest OctoPrint"
  uses: actions/checkout@v3
  with:
    repository: OctoPrint/OctoPrint
    path: OctoPrint

- name: 🚀 Run Cypress
  uses: cypress-io/github-action@v2
  with:
    working-directory: OctoPrint/tests/cypress
    browser: chrome
  env:
    CYPRESS_BASE_URL: "http://flashhost/${{ github.event.inputs.target }}/"

```



✓ Test against testrig Test against testrig #38

🏠 Summary

Jobs

✓ 🏠 Deploy

✓ 🚀 E2E

🚀 E2E

succeeded 4 minutes ago in 2m 46s

- > ✓ Set up job
- > ✓ 🌐 Connect to tailscale network
- > ✓ ✓ Check if tailscale is running and make sure DUT is up
- > ✓ ⬇ Checkout latest OctoPrint
- > ✓ 🚀 Run Cypress
 - 🕒 ⬆ Upload screenshots
- > ✓ ⬆ Upload videos
- > ✓ Post ⬇ Checkout latest OctoPrint

Image build

- Build injects tag into release notes
- Testrig workflow is triggered
- Environment protection
- Tag is removed

```
test:
  name: "Test"
  runs-on: ubuntu-latest
  needs: build
  steps:
    - name: 🏃 Run test against testrig
      uses: jonas-schievink/workflow-proxy@v1
      with:
        token: ${{ secrets.DISPATCH_TOKEN }}
        workflow: Test against testrig
        repo: OctoPrint/devtools
        ref: main
        inputs: '{"image": "${{ needs.build.outputs.image-url }}", "t
        repost-logs: true

deploy:
  name: "Deploy"
  runs-on: ubuntu-latest
  needs: [build, test]
  environment: live
  steps:
    - uses: actions/github-script@v5
      name: "✓ Mark release as tested"
      env:
        TAG: "${{ needs.build.outputs.tag }}"
      with:
        script: |
          # remove untested tag
```



🟢 octoprint_release CustopiZe #29

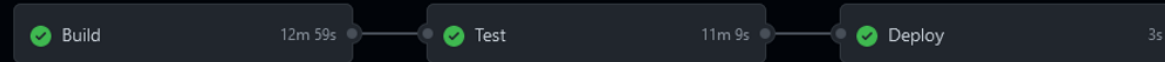
🏠 Summary

Jobs

- 🟢 Build
- 🟢 Test
- 🟢 Deploy


Re-run triggered 14 minutes ago Status Total duration Artifacts
foosel → ebdb552 **Success** **12m 8s** —

customize.yml
on: repository_dispatch

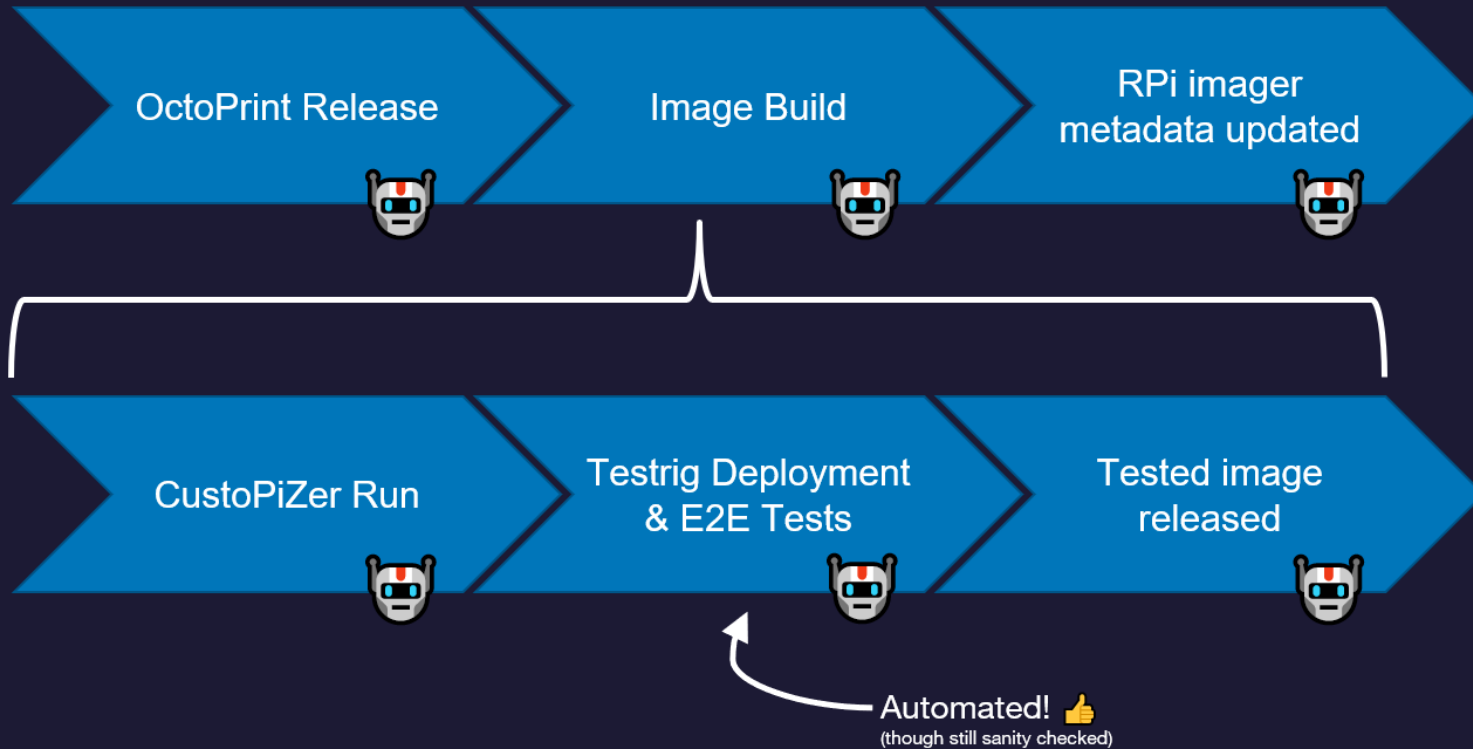


Deployment reviews

Learn who reviewed the deployments in this run

Event	Environments	Comment
 foosel approved 2 minutes ago	live	Tests are green, let's ship this!





Where's the code?

- [OctoPrint/CustoPiZer](#)
- [OctoPrint/devtools](#)
- [OctoPrint/OctoPi-UpToDate](#)



