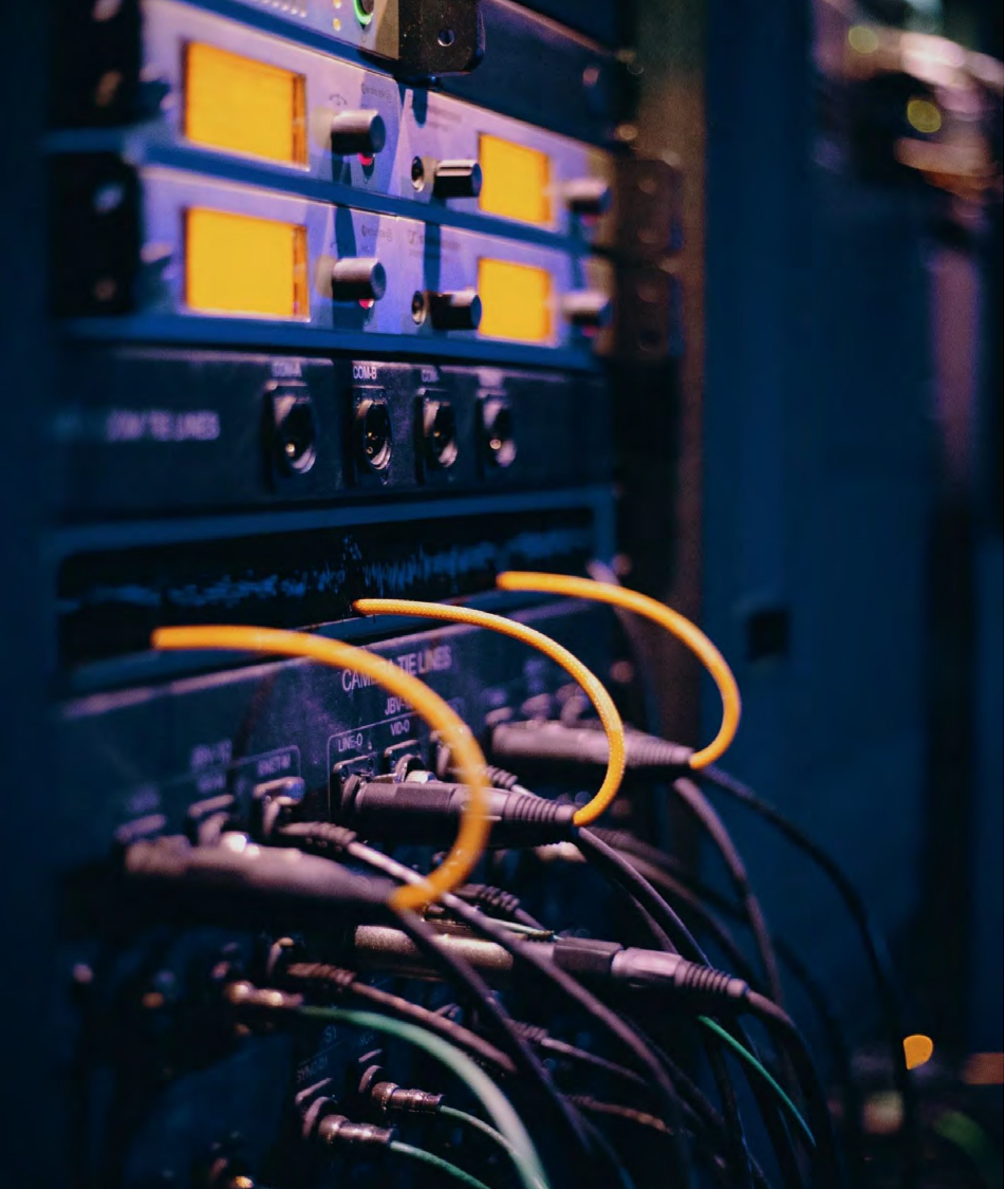
Secure Integration of Private Testing Infrastructure with Public GitHub Repositories

Conf42 DevOps 2025



Proposed Problem

How can I integrate GitHub with a private Jenkins server?

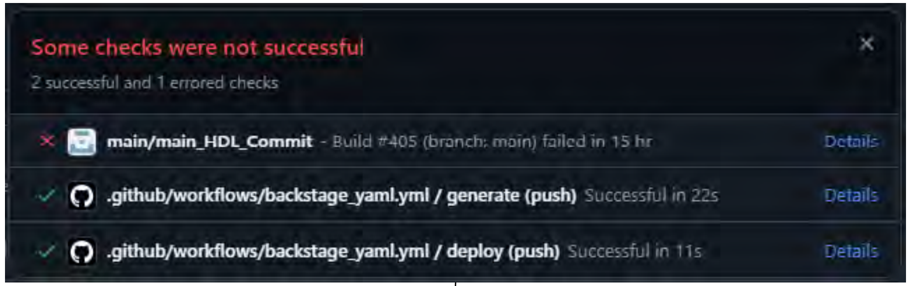
Why not Cloud?

Because your software product:

- might produce big artifacts
- may require additional (paid) licenses
- might require specific hardware resources

… Or you simply might prefer a self hosted open-source CI/CD solution.

What we want to achieve



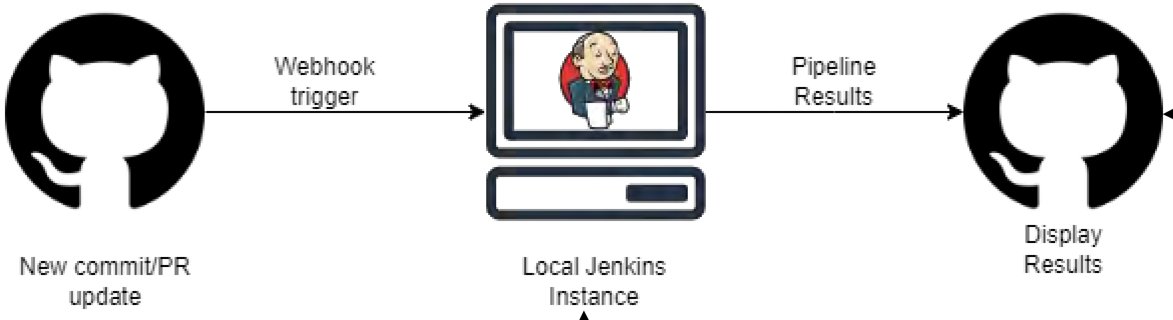
Some checks were not successful

2 successful and 1 errored checks

✗ main/main_HDL_Commit - Build #405 (branch: main) failed in 15 hr Details

✓ .github/workflows/backstage_yaml.yml / generate (push) Successful in 22s Details

✓ .github/workflows/backstage_yaml.yml / deploy (push) Successful in 11s Details



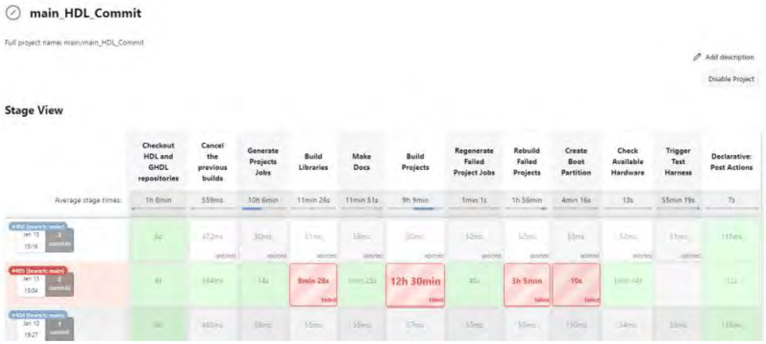
New commit/PR update

Webhook trigger

Local Jenkins Instance

Pipeline Results

Display Results



main_HDL_Commit

Full project name: main/main_HDL_Commit

Add description

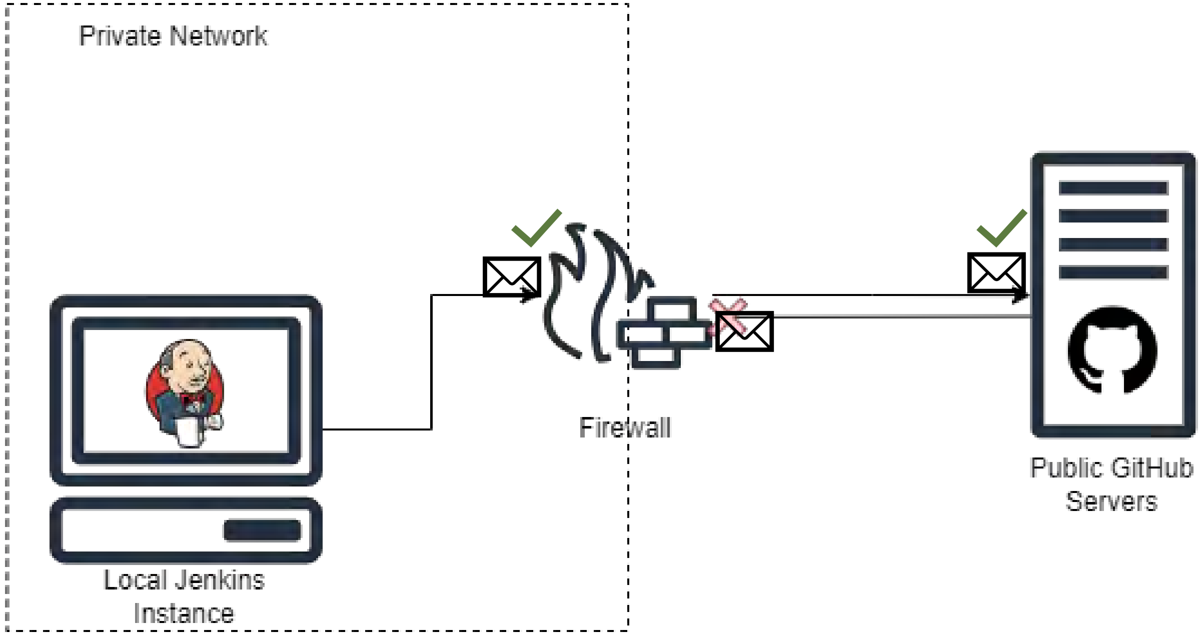
Disable Project

Stage View

	Checkout HDL and GHDL repositories	Cancel the previous builds	Generate Projects Jobs	Build Libraries	Make Docs	Build Projects	Regenerate Failed Project Jobs	Rebuild Failed Projects	Create Boot Partition	Check Available Hardware	Trigger Test Harness	Declarative: Post Actions
Average stage times:	1h 6min	559ms	10h 6min	11min 26s	11min 51s	9h 9min	1min 1s	1h 56min	4min 16s	13s	55min 19s	7s
#406 (branch: main) Jan 13 15:16 3 commits	5s	472ms aborted	30ms aborted	51ms aborted	58ms aborted	30ms aborted	52ms aborted	52ms aborted	53ms aborted	52ms aborted	51ms aborted	118ms
#405 (branch: main) Jan 13 15:04 2 commits	4s	554ms	14s	9min 26s failed	1min 23s	12h 30min failed	46s	3h 5min failed	10s failed	1min 44s		12s
#404 (branch: main) Jan 10 19:27 1 commit	3s	465ms	58ms	55ms	55ms	57ms	55ms	55ms	150ms	54ms	50ms	108ms

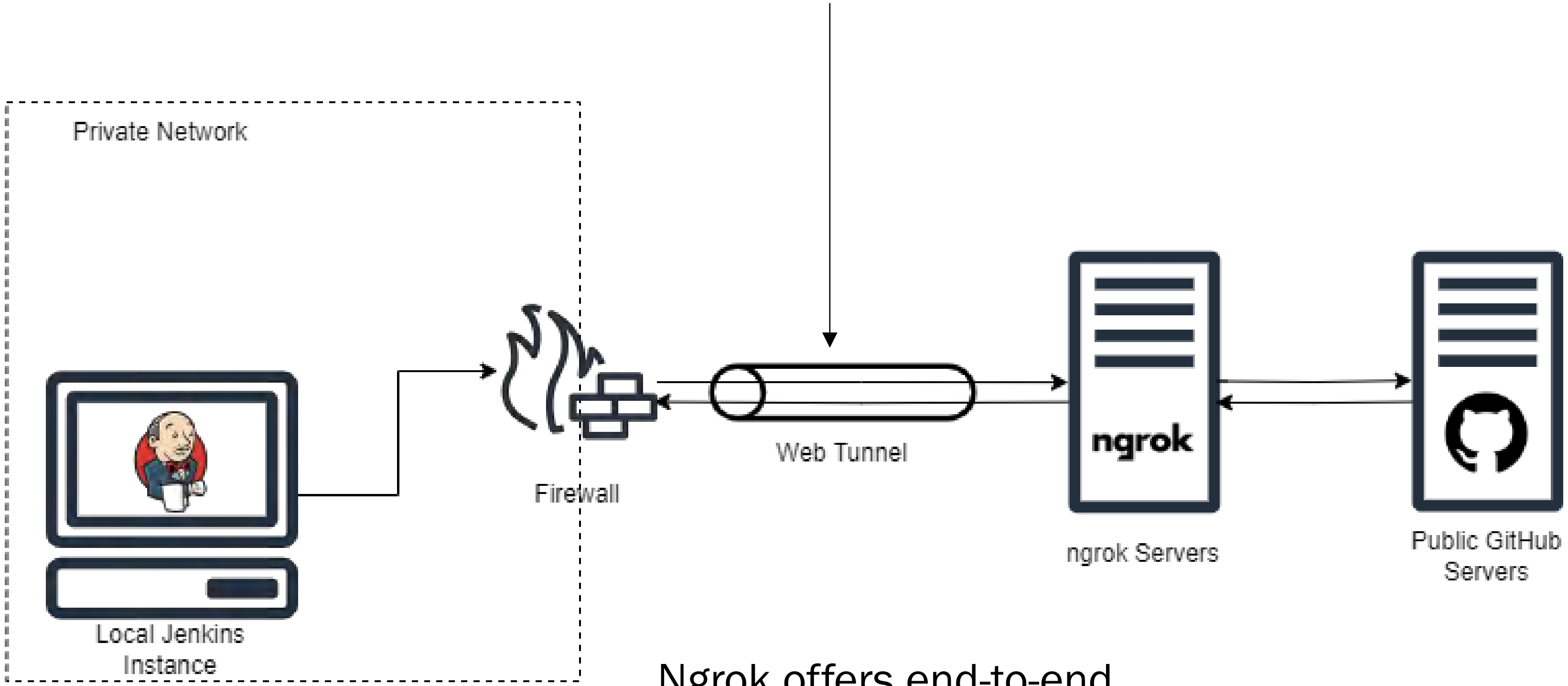
What are the issues?

- GitHub can't notify Jenkins whenever there are new commits/pull request updates
- You can't display Jenkins pipeline results in GitHub without allowing unauthenticated users access to your Jenkins instance



Web Tunneling

Traffic is forwarded through a secure tunnel to and from the ngrok servers

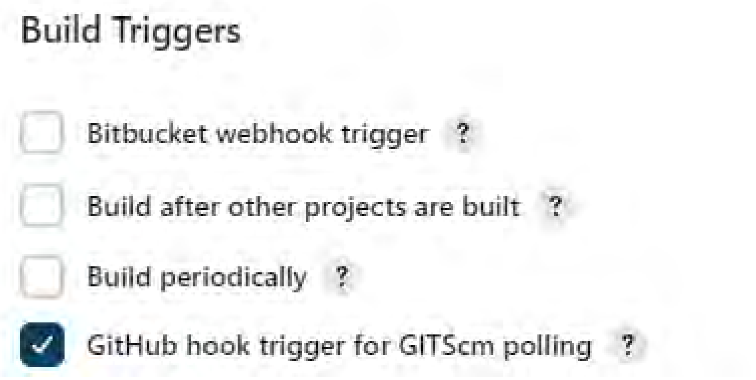


Ngrok offers end-to-end encryption

Jenkins GitHub Integration

Jenkins offers several plugins that enable GitHub triggers:

- GitHub (offers support for commits)
- GitHub Pull Request Builder (offers support for pull requests)
- Generic Webhook Trigger (offers support for any HTTP request)



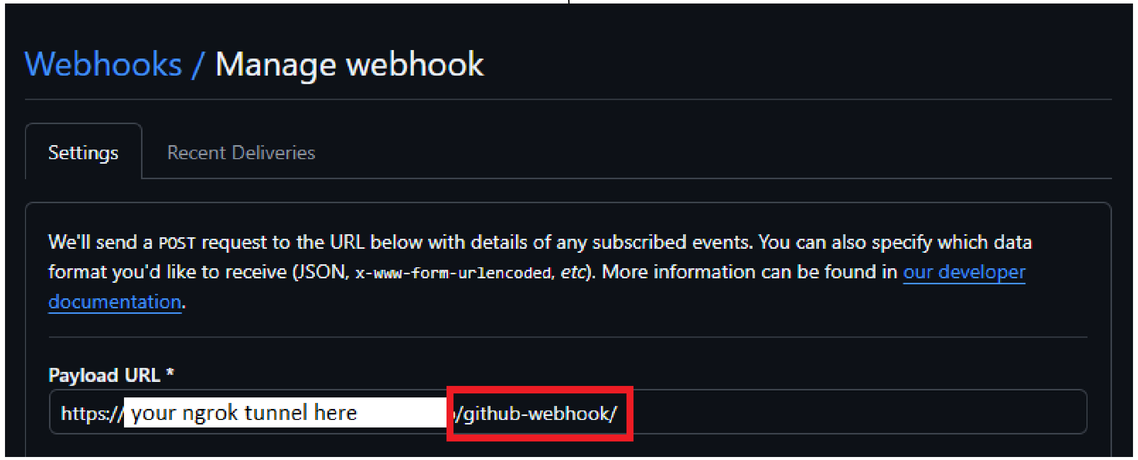
Build Triggers

□ Bitbucket webhook trigger ?

□ Build after other projects are built ?

□ Build periodically ?

☑ GitHub hook trigger for GITScm polling ?



Webhooks / Manage webhook

We'll send a POST request to the URL below with details of any subscribed events. You can also specify which data format you'd like to receive (JSON, x-www-form-urlencoded, *etc*). More information can be found in our developer documentation.

Payload URL *

https:// your ngrok tunnel here /github-webhook/

Jenkins GitHub Integration

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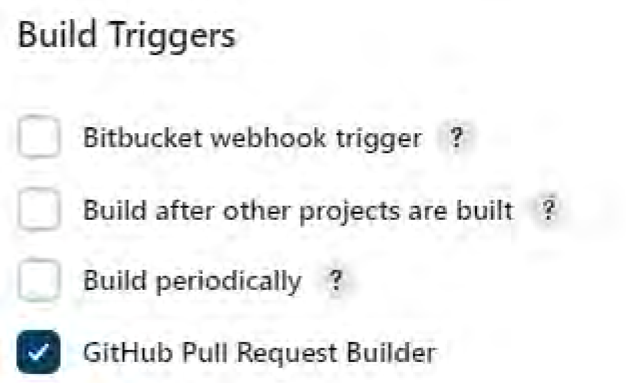

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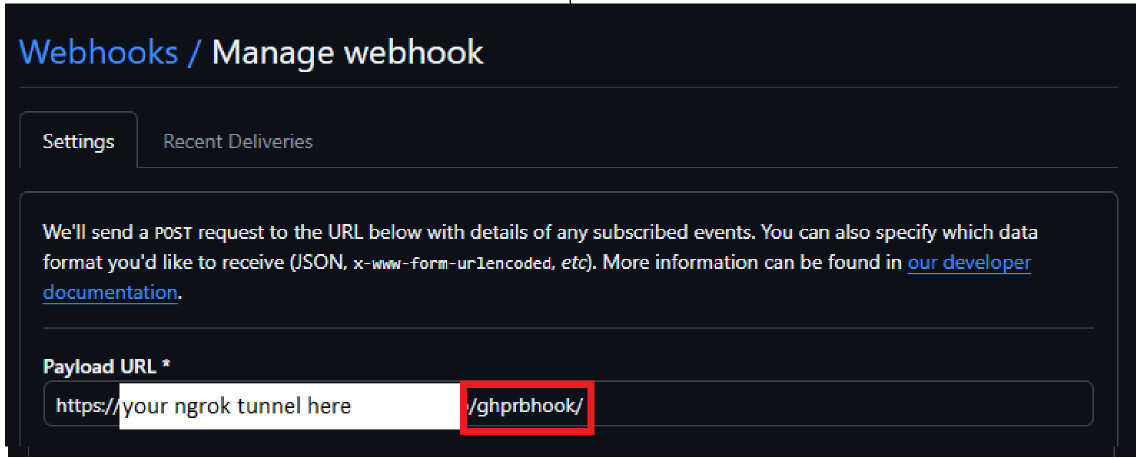
☑ GitHub Pull Request Builder



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What are the issues?

- ✓ GitHub can’t notify Jenkins whenever there are new commits/pull request updates
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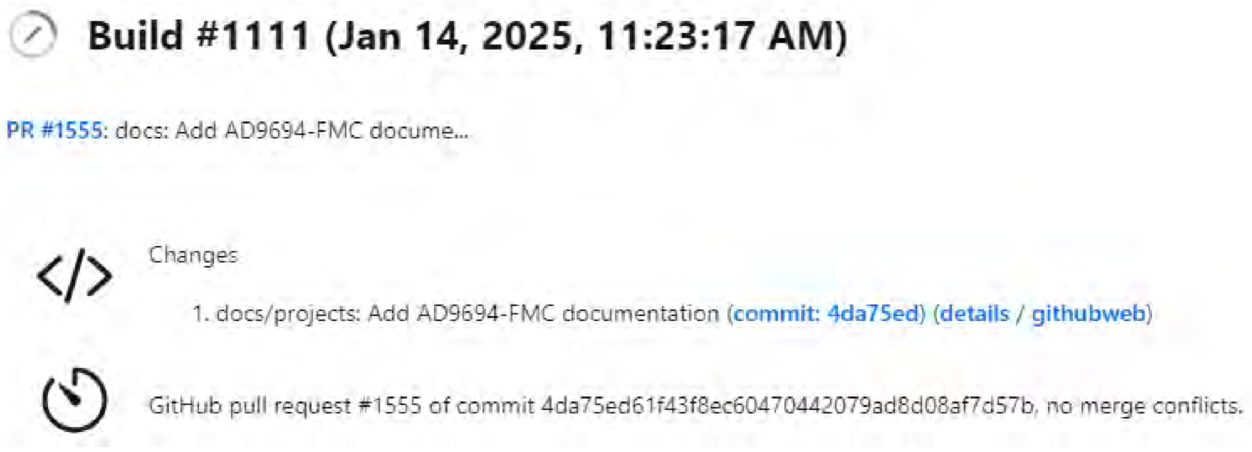


Build #1111 (Jan 14, 2025, 11:23:17 AM)

PR #1555: docs: Add AD9694-FMC docume...

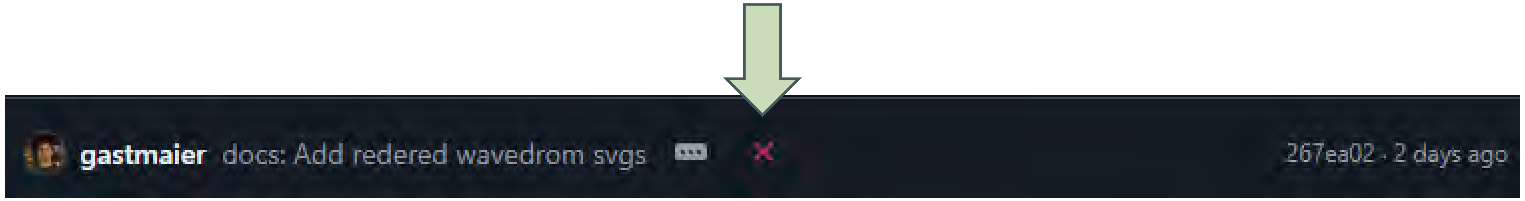
Changes

1. docs/projects: Add AD9694-FMC documentation (commit: 4da75ed) (details / githubweb)

GitHub pull request #1555 of commit 4da75ed61f43f8ec60470442079ad8d08af7d57b, no merge conflicts.

Jenkins Status

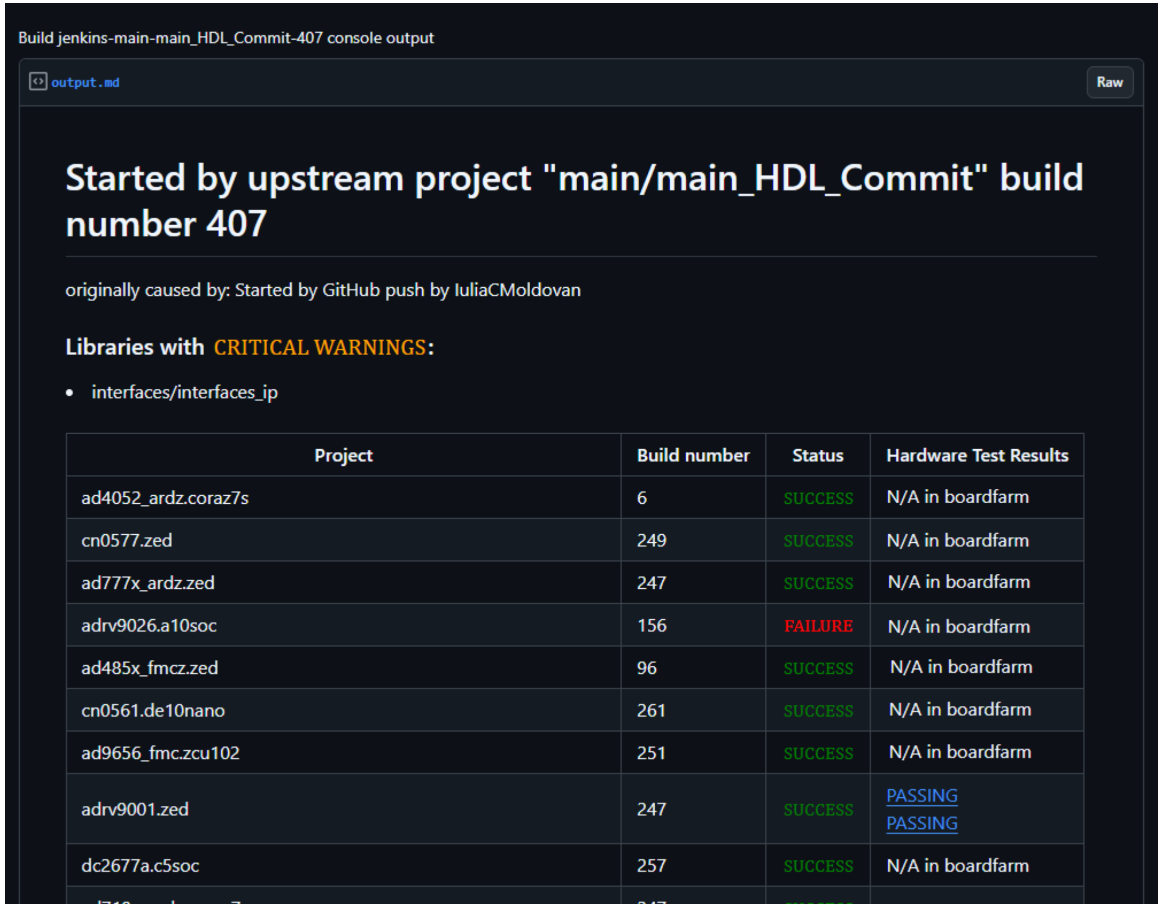
- The Jenkins GitHub plugin can be used for updating the status of the commit/PR that triggered a pipeline run.
- The status is highly customizable but the most important aspect is the reference link (the “Details” hyperlink displayed in GitHub).
- By default, the link is set to the Jenkins build output (the local server’s IP, **not** the web tunnel). We don’t want that.
- An intuitive choice would be to set the reference link to the web tunnel URL, but then you would have to provide Read access to the Jenkins server to unauthenticated users (which is another security issue).



gastmaier docs: Add redered wavedrom svgs ··· ✕ 267ea02 · 2 days ago

Job Status Details in GitHub

- A quick and easy to solve this issue would be to use Gists.
- The output of the Jenkins job can be pre-processed (Gists support markdown for example) to make it easier to read and sanitized of sensitive information (credentials, IPs, etc.) before creating the Gist.
- GitHub has a CLI which supports creating Gists, meaning you can fully incorporate this into your pipelines (as a post-build stage for example).



Build jenkins-main-main_HDL_Commit-407 console output

Started by upstream project "main/main_HDL_Commit" build number 407

originally caused by: Started by GitHub push by IuliaCMoldovan

Libraries with CRITICAL WARNINGS:

- interfaces/interfaces_ip

Project	Build number	Status	Hardware Test Results
ad4052_ardz.coraz7s	6	SUCCESS	N/A in boardfarm
cn0577.zed	249	SUCCESS	N/A in boardfarm
ad777x_ardz.zed	247	SUCCESS	N/A in boardfarm
adrv9026.a10soc	156	FAILURE	N/A in boardfarm
ad485x_fmcz.zed	96	SUCCESS	N/A in boardfarm
cn0561.de10nano	261	SUCCESS	N/A in boardfarm
ad9656_fmc.zcu102	251	SUCCESS	N/A in boardfarm
adrv9001.zed	247	SUCCESS	PASSING PASSING
dc2677a.c5soc	257	SUCCESS	N/A in boardfarm

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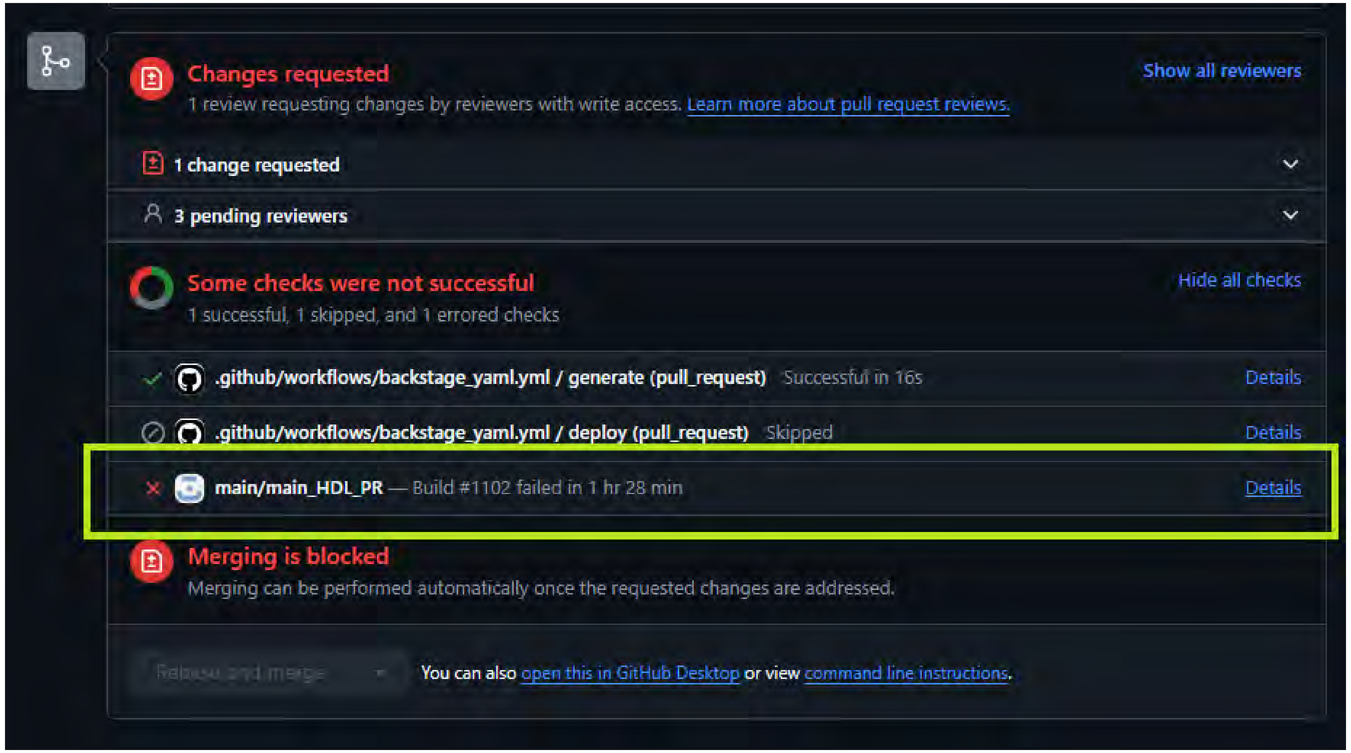

Changes requested

1 review requesting changes by reviewers with write access. Learn more about pull request reviews.

Show all reviewers

1 change requested

3 pending reviewers

Some checks were not successful

1 successful, 1 skipped, and 1 errored checks

Hide all checks

✓ .github/workflows/backstage_yaml.yml / generate (pull_request) Successful in 16s — Details

.github/workflows/backstage_yaml.yml / deploy (pull_request) Skipped — Details

✕ main/main_HDL_PR — Build #1102 failed in 1 hr 28 min — Details

Merging is blocked

Merging can be performed automatically once the requested changes are addressed.

You can also open this in GitHub Desktop or view command line instructions.

Key Takeaways

What we did:

- We automated the process of building and testing our GitHub projects on our local Jenkins server
- We setup a process of automatically posting back the Jenkins job results
- We maintained a secure testing infrastructure

What we gained:

- Easier to catch bugs
- More detailed history of our changes
- Easier to review pull requests
- Every change is tested inside the same controlled environment (no more “it works on my computer” bugs)

Thank you and happy coding!

Bianca Popu

DevOps Software Engineer @AnalogDevices

bianca-maria.popu@analog.com

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