

1.5 years in the infra team: what we cooked and what's next



Marco Ieni
Infrastructure Engineer | The Rust Foundation

rustfoundation.org





4th year in a row @RustLab



Release-plz.dev

Release-plz

**Release Rust
crates from CI
with a Release PR**



Agenda

- Intro
- For devs
- For contributors
- What's next

Agenda

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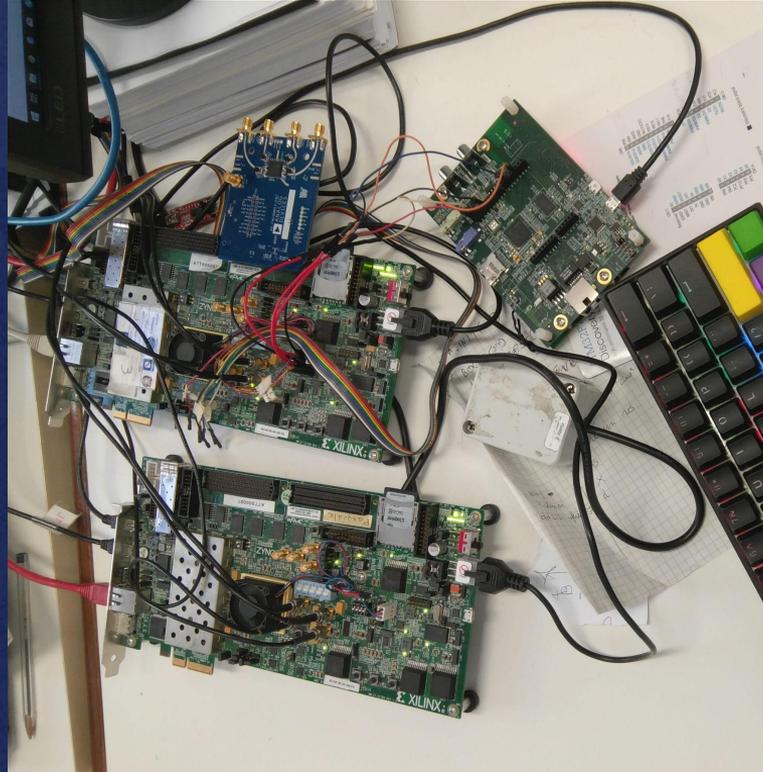
Agenda

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2018 - 2020



2020 - 2024



July 2024



**Rust
Foundation**



rustfoundation.org



RF Platinum members

arm

aws

Google

 HUAWEI

 Meta

 Microsoft

RF Silver members

1Password



AdaCore

adorsys



AUTOMATA

code
Construct

Devolutions



Filecoin
Foundation



FUTUREWEI
Technologies



HIGHTEC

JETBRAINS



LYNX | SOFTWARE
TECHNOLOGIES

Maimatter

moz://a

OPEN
SOURCE
SECURITY

oxid[os]
AUTOMOTIVE



SENTRY

<tag>

Threema.



天市垣資本
TSY CAPITAL

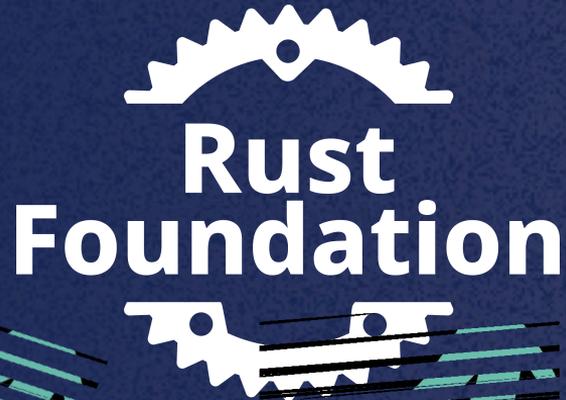
tweede golf

veeclé. WYEWORCS.

ZAMA

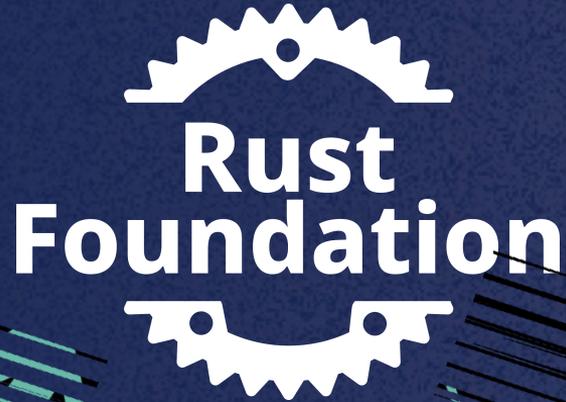
ZED
INDUSTRIES

Rust Foundation



- HR
- Marketing
- Events

Rust Foundation



Infrastructure team



Jan David Nose

GitHub: [jdno](#)
Team leader



Jake Goulding

GitHub: [shepmaster](#)
Team leader



Jieyou Xu

GitHub: [jjeyouxu](#)



Jakub Beránek

GitHub: [Kobzol](#)



Marco Ieni

GitHub: [marcoieni](#)



Mark Rousskov

GitHub: [Mark-Simulacrum](#)



Pietro Albini

GitHub: [pietroalbini](#)

Agenda

- Intro
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- Intro
- **For devs**
- For contributors
- What's next

Stakeholders

- Rust developers (Rustaceans)
- Rust contributors (Rust project)

For Rust devs

- **Crates-io-auth-action**
- **CDNs**
- **rust-lang.org website**
- **Critical assets backup**
- **Rust Playground**

Rust Playground

changelog?

crates-io-auth-action

Repository owner

The GitHub organization name or GitHub username that owns the repository.

Repository name

The name of the GitHub repository that contains the publishing workflow.

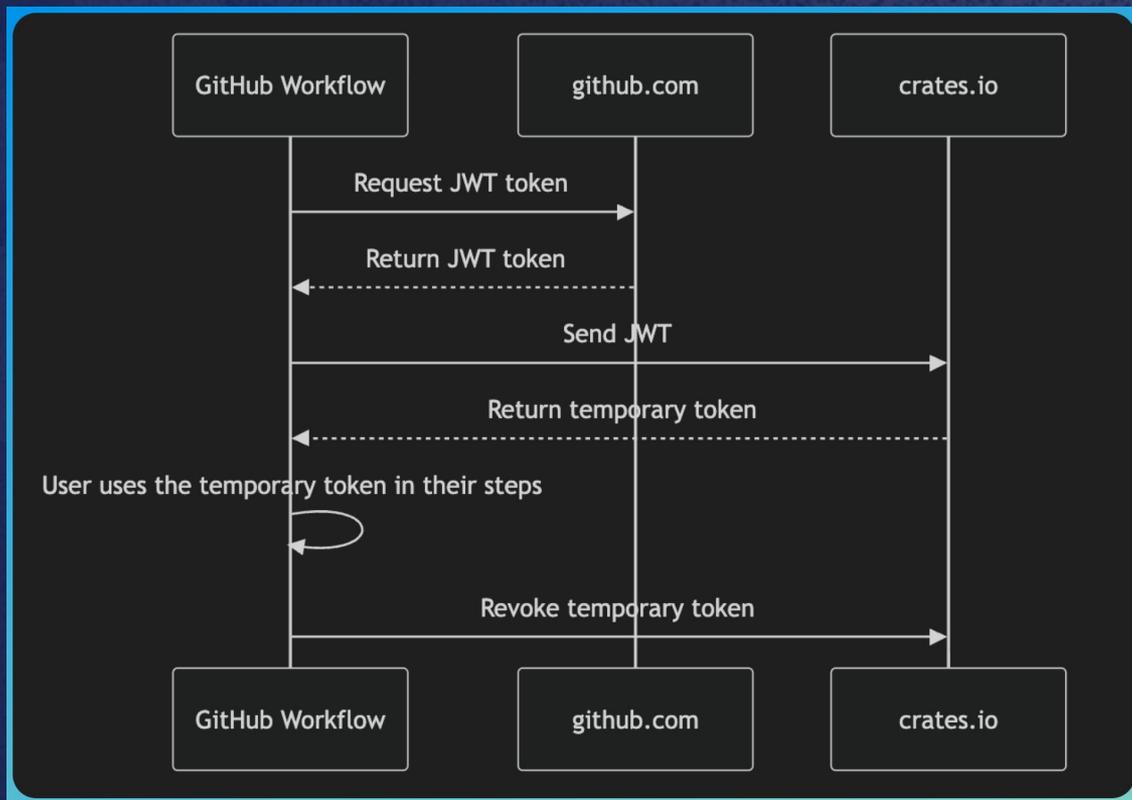
Workflow filename

crates.io/docs/trusted-publishing

crates-io-auth-action

```
name: Publish to crates.io
on:
  push:
    tags: ['v*'] # Triggers when pushing tags starting with 'v'
jobs:
  publish:
    runs-on: ubuntu-latest
    environment: release # Optional: for enhanced security
    permissions:
      id-token: write # Required for OIDC token exchange
    steps:
      - uses: actions/checkout@v5
      - uses: rust-lang/crates-io-auth-action@v1
        id: auth
      - run: cargo publish
    env:
      CARGO_REGISTRY_TOKEN: ${ steps.auth.outputs.token }
```

crates-io-auth-action



CDNs

doc.rust-lang.org/1.65/std/boxed/struct.Box.html

CDNs

doc.rust-lang.org/1.65/std/boxed/struct.Box.html



doc.rust-lang.org/1.65.0/std/boxed/struct.Box.html.

CDNs

doc.rust-lang.org/1.65/std/boxed/struct.Box.html



doc.rust-lang.org/1.65.0/std/boxed/struct.Box.html.

CDNs

static.rust-lang.org/doc/master/*



doc.rust-lang.org/stable/*

CDNs

**`doc.rust-lang.org` now redirects to
`doc.rust-lang.org/stable/` instead of
`www.rust-lang.org/learn.`**

CDNs

**Set up monitoring and alerting for
critical systems**

rust-lang.org



[Install](#)

[Learn](#)

[Playground](#)

[Tools](#)

[Governance](#)

[Community](#)

[Blog](#)

English (en-US) ▼

Rust

A language empowering everyone
to build reliable and efficient software.

GET STARTED

[Version 1.90.0](#)

rust-lang.org



Rust webserver



Static website

Critical Assets Backup



AWS S3



Infra admin compromised



Critical Assets Backup



AWS S3

- Rust releases
- Crates



Infra admin compromised



Critical Assets Backup

“Unprecedented” Google Cloud event wipes out customer account and its backups

UniSuper, a \$135 billion pension account, details its cloud compute nightmare.

RON AMADEO – MAY 17, 2024 10:22 PM | 244

arstechnica.com/gadgets/2024/05/google-cloud-accidentally-nukes-customer-account-causes-two-weeks-of-downtime/

Critical Assets Backup



AWS S3



Infra admins

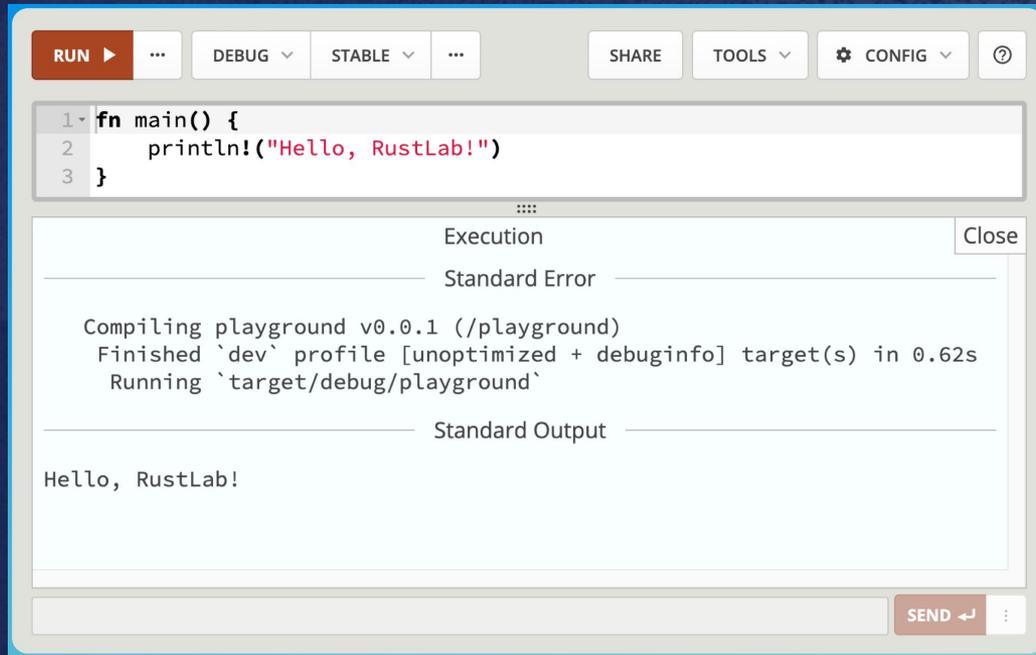


GCP storage



Two RF employees

Rust Playground



The screenshot shows the Rust Playground interface. At the top, there are buttons for 'RUN', 'DEBUG', 'STABLE', 'SHARE', 'TOOLS', 'CONFIG', and a help icon. Below these is a code editor with the following Rust code:

```
1 fn main() {  
2     println!("Hello, RustLab!")  
3 }
```

Below the code editor is a terminal window titled 'Execution' with a 'Close' button. The terminal output is as follows:

```
Standard Error  
-----  
Compiling playground v0.0.1 (/playground)  
Finished `dev` profile [unoptimized + debuginfo] target(s) in 0.62s  
Running `target/debug/playground`  
-----  
Standard Output  
-----  
Hello, RustLab!
```

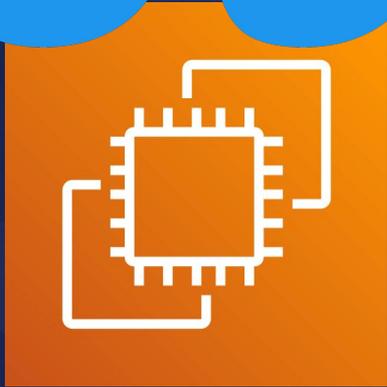
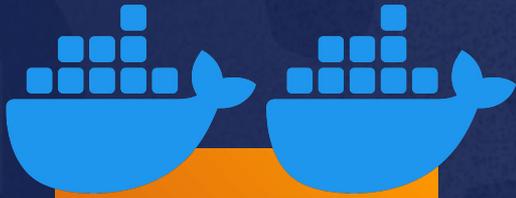
At the bottom right of the terminal window, there is a 'SEND' button with a return key icon.

play.rust-lang.org

Rust Playground



Rust Playground



EC2



Cloudfront CDN



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Rust contributors

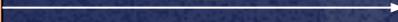
- CI
- CI-mirrors
- Team
- Bors
- crater
- and more...



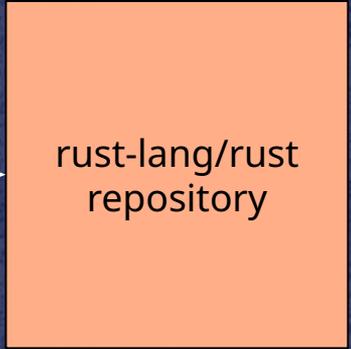
Commit



Continuous
Integration

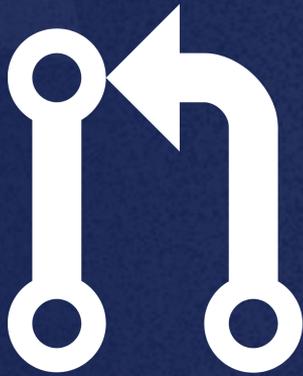


rust-lang/rust
repository

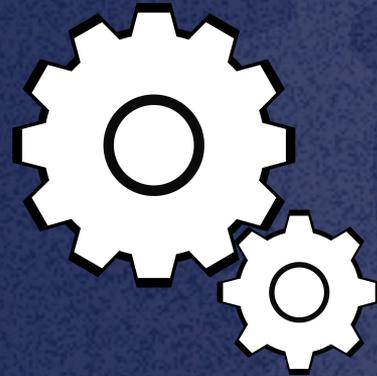


CI jobs

**Pull
Request**



**Auto
build**



Pull Request

All checks have passed

5 successful and 1 skipped checks

- | | | | | |
|---|------------------------------------------------------------------------------------|---------------------------------------------|-------------------|-------------------------|
| ✓ |  | CI / Calculate job matrix (pull_request) | Successful in 11s | Details |
| ✓ |  | CI / PR - mingw-check (pull_request) | Successful in 36m | Details |
| ✓ |  | CI / PR - mingw-check-tidy (pull_request) | Successful i... | Details |
| ✓ |  | CI / PR - x86_64-gnu-llvm-18 (pull_request) | Successf... | Details |
| ✓ |  | CI / PR - x86_64-gnu-tools (pull_request) | Successful i... | Details |

Auto build

Matrix: job

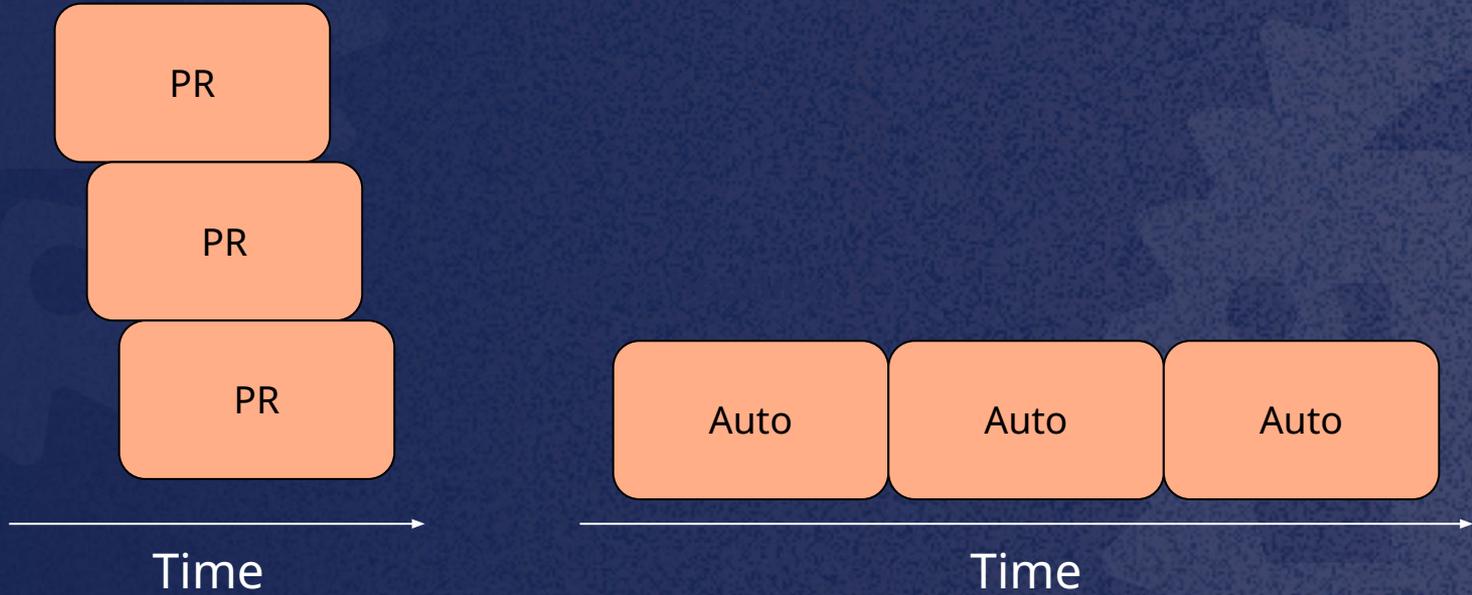
✓ 84 jobs completed

Show all jobs

✓ bors build finished

16s

CI jobs



Auto build

Tier 2	 

Auto build

Tier 2	 
Tier 1	  

Actions Usage Metrics

Period: Last month ▾

Showing data from 7/1/2025 to 7/31/2025

Total minutes

3,337,299

Total minutes across all workflows in this organization for last month

Total job runs

63,516

Total job runs across all workflows in this organization for last month

~6 years



Runner types

	Standard	Large

<https://docs.github.com/en/actions/reference/larger-runners-reference>

Runner types

	Standard	Large
CPU cores	4	Up to 96

<https://docs.github.com/en/actions/reference/larger-runners-reference>

Runner types

	Standard	Large
CPU cores	4	Up to 96
Available disk space	14 GB	Up to 2TB

<https://docs.github.com/en/actions/reference/larger-runners-reference>

Runner types

	Standard	Large
CPU cores	4	Up to 96
Available disk space	14 GB	Up to 2TB
Price	Free	\$

<https://docs.github.com/en/actions/reference/larger-runners-reference>

Used runners

Machine	Per-minute rate (September 2025)
Linux 4-core	\$0.016
Linux 8-core	\$0.032
Linux 16-core	\$0.064
Windows 8-core	\$0.064

docs.github.com/en/billing/managing-billing-for-your-products/about-billing-for-github-actions

\$141

Cost of one auto build
in October 2024

~\$47'000

Large runners usage
in October 2024



GitHub

Multi-year agreement

rustfoundation.org/media/rust-foundation-and-github-sign-multiyear-enterprise-agreement

500

Concurrent standard
runners

%

Discount on large
runners



**Large
runners**



**Standard
runners**

Auto build

	October '24	May '25

Auto build

	October '24	May '25
# Large runners	33 / 60	4 / 81

Auto build

	October '24	May '25
# Large runners	33 / 60	4 / 81
Cost	\$141	\$34

AWS CodeBuild

AWS alternative to
GitHub large runners

```
runs-on: ubuntu-24.04
```

AWS CodeBuild

AWS alternative to
GitHub large runners

```
runs-on: codebuild-ubuntu-...
```



GitHub

Linux ARM 8c

Windows 8c

Linux 16c

Linux 16c

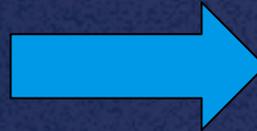
GitHub



Linux ARM 8c

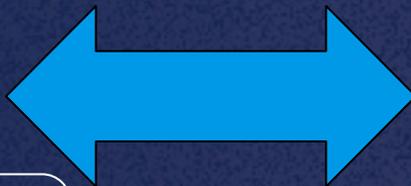
Windows 8c

Linux 16c



Linux 16c

GitHub



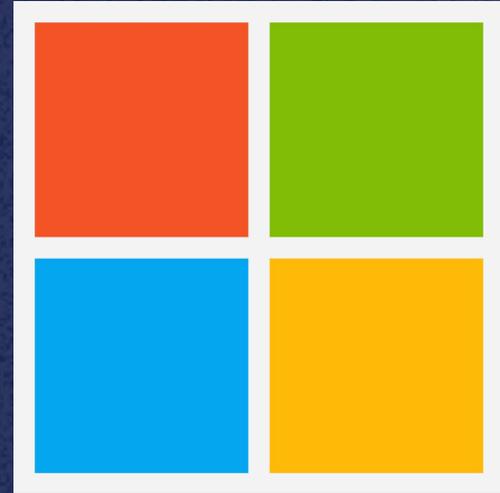
Linux ARM 8c

Windows 8c

Linux 16c

Linux 16c

Azure credits



CI

rust-lang-ci / rust

<> Code Pull requests Actions Projects Security Insights Settings

This repository was archived by the owner on May 28, 2025. It is now read-only.

rust Public archive

forkee from [rust-lang/rust](#)

Edit Pins Watch 2 Fork 6 Star 11

CI

GitHub deprecated runners:

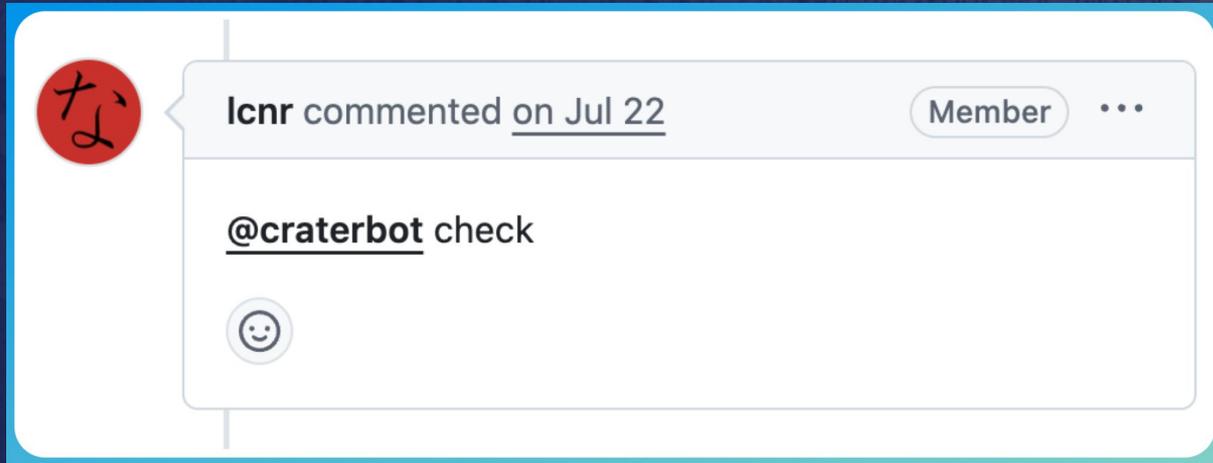
- **Ubuntu-20**
- **Macos-13**
- **windows-2019**

CI mirrors

github.com/rust-lang/ci-mirrors

```
[[files]]  
name = "rustc/LLVM-20.1.3-win64.exe"  
source = "https://github.com/llvm/llvm-project/releases/download/llvmorg-20.1.3/LLVM-20.1.3-win64.exe"  
sha256 = "a018ea761147a7de69d6dd60ef81b74096e5255aec6caff22d45da85188614af"  
license = "Apache License v2.0 with LLVM Exceptions"
```

Crater



Crater



PR #1234



Stable

cargo check
cargo test



Crater



craterbot commented on Jul 25

Member



🎉 Experiment `pr-144156` is completed!

📊 5 regressed and 2 fixed (669082 total)

📄 [Open the summary report.](#)

⚠️ If you notice any spurious failure [please add them to the denylist!](#)

ℹ️ **Crater** is a tool to run experiments across parts of the Rust ecosystem. [Learn more](#)



Crater



Dev desktops

`ssh dev-desktop-us-1.infra.rust-lang.org`

forge.rust-lang.org/infra/docs/dev-desktop.html

Ubuntu 24

We updated the server for the Rust Playground, the Infrastructure Team's bastion server, the Cloud Compute dev-desktops, and the servers for crater to Ubuntu 24

Merge queues

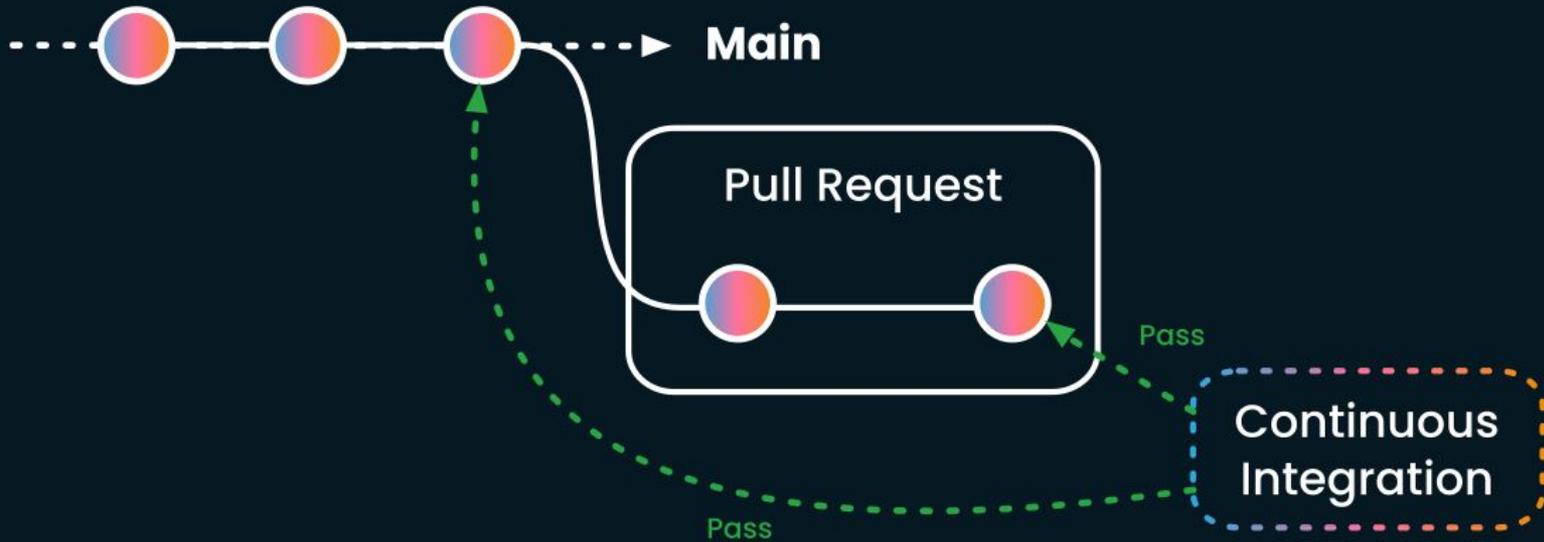


Image credits: mergify.com

Merge queues

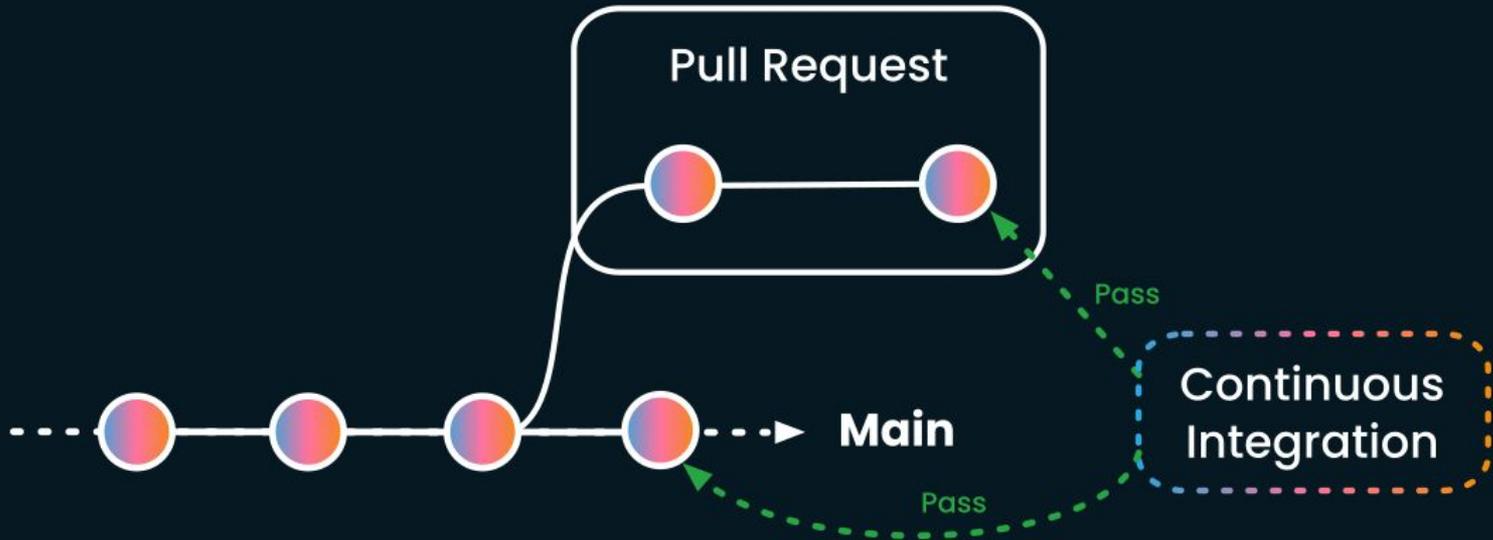


Image credits: mergify.com

Merge queues

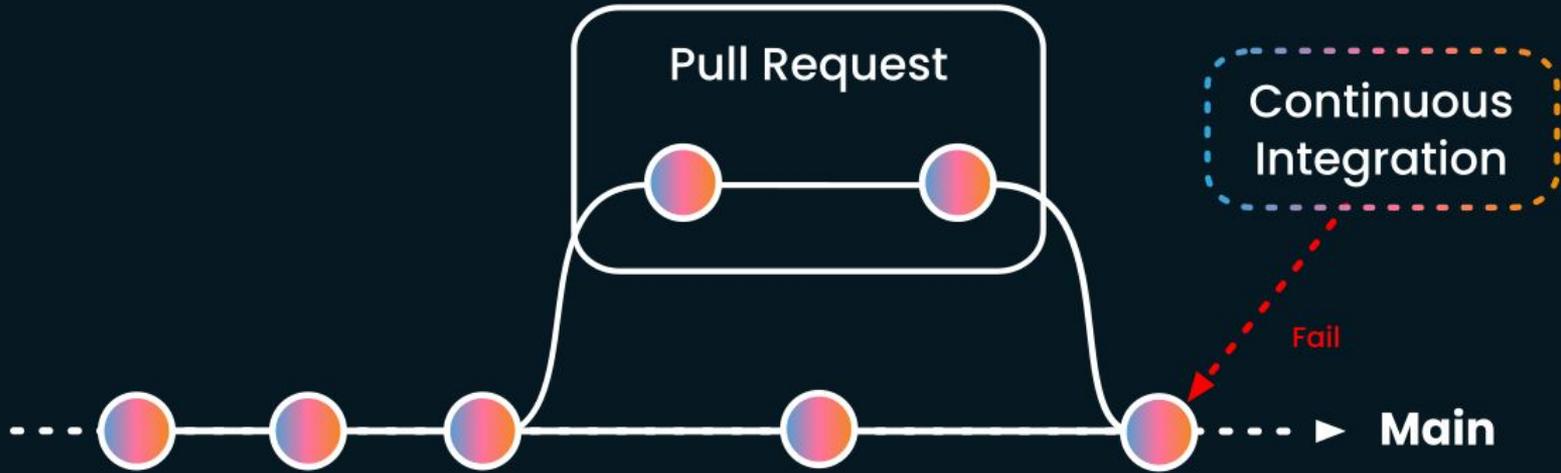


Image credits: mergify.com

Merge queues

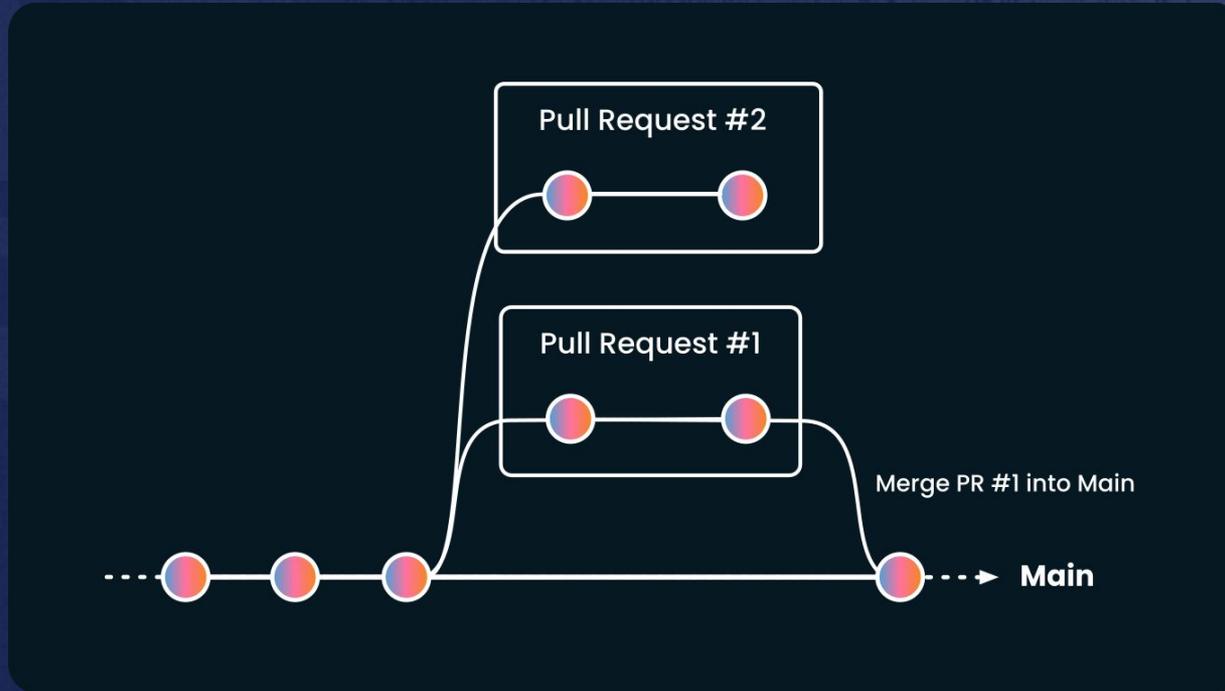
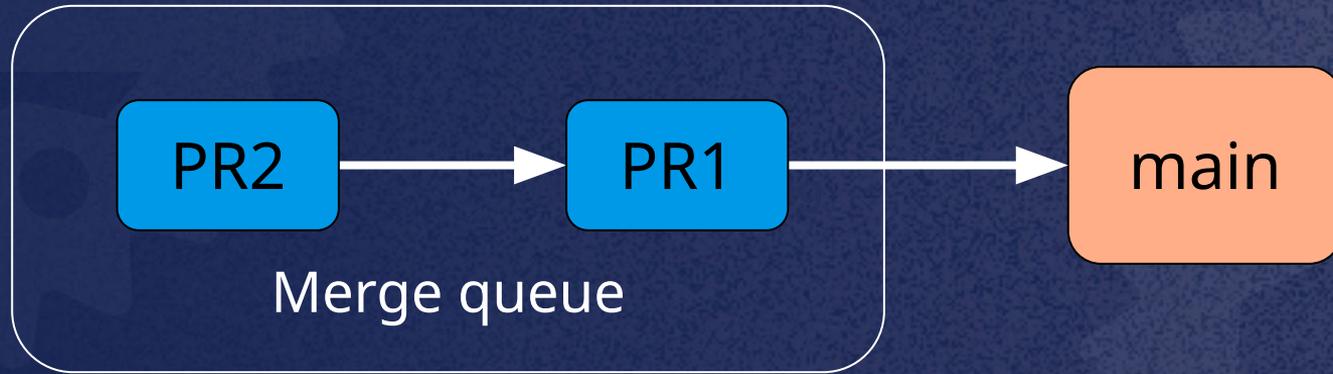


Image credits: mergify.com

Merge queues



Bors



Mark-Simulacrum commented 4 days ago

Member



@bors r+



Rollup of 5 pull requests #144181



Merged

bors merged 12 commits into `rust-lang:master` from `jieyouxu:rollup-61j2sar` 2 weeks ago



Conversation 12



Commits 12



Checks 11



Files changed 33



jieyouxu commented 2 weeks ago · edited by rustbot

Member



Successful merges:

- [Tidy cleanup 2 #143960](#) (Tidy cleanup 2)
- [docs: update link to RISC-V and Xtensa installation guide #144149](#) (docs: update link to RISC-V and Xtensa installation guide)
- [Rename `optional-mingw-check-1` to `optional-pr-check-1` #144152](#) (Rename `optional-mingw-check-1` to `optional-pr-check-1`)
- [Fix clippy lints in librustdoc #144178](#) (Fix clippy lints in librustdoc)
- [fix load-bearing typo #144180](#) (fix load-bearing typo)

r? [@ghost](#)

[@rustbot](#) modify labels: rollup

[Create a similar rollup](#)



Bors



Kobzol commented 3 weeks ago

Member

Author



@bors try jobs=i686-gnu-2



Bors



rust-bors bot commented 3 weeks ago ...

☀️ Try build successful ([CI](#))

Build commit: [f1aa781](#)

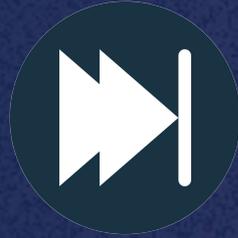
(`f1aa781871f35b5f337136fd2c314d660eb3f1b3` , parent:
`15283f6fe95e5b604273d13a428bab5fc0788f5a`)



Bors

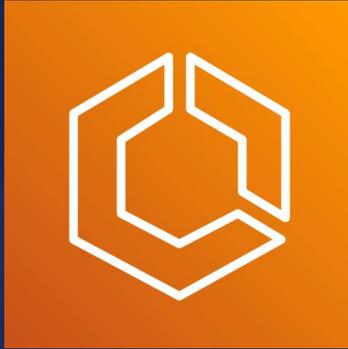


github.com/rust-lang/homu



github.com/rust-lang/bors

Bors



ECS

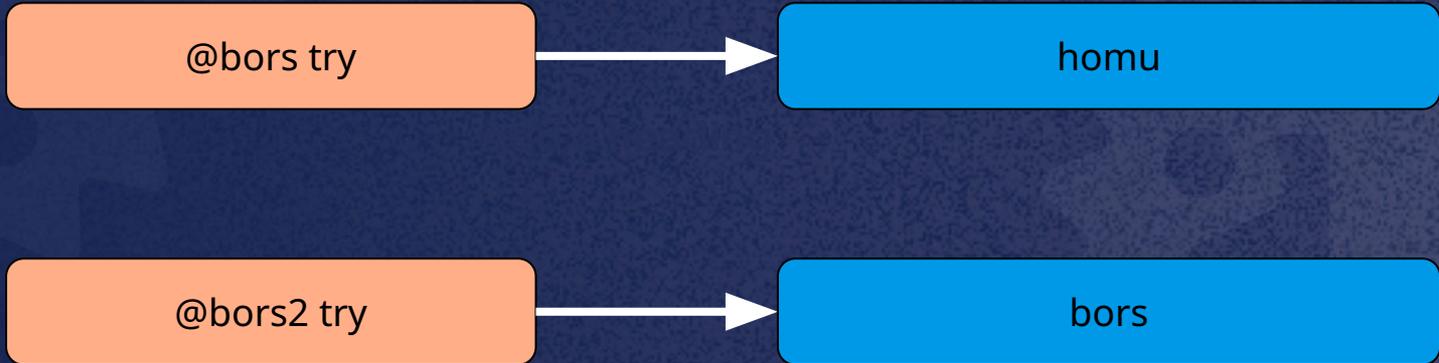


Fargate

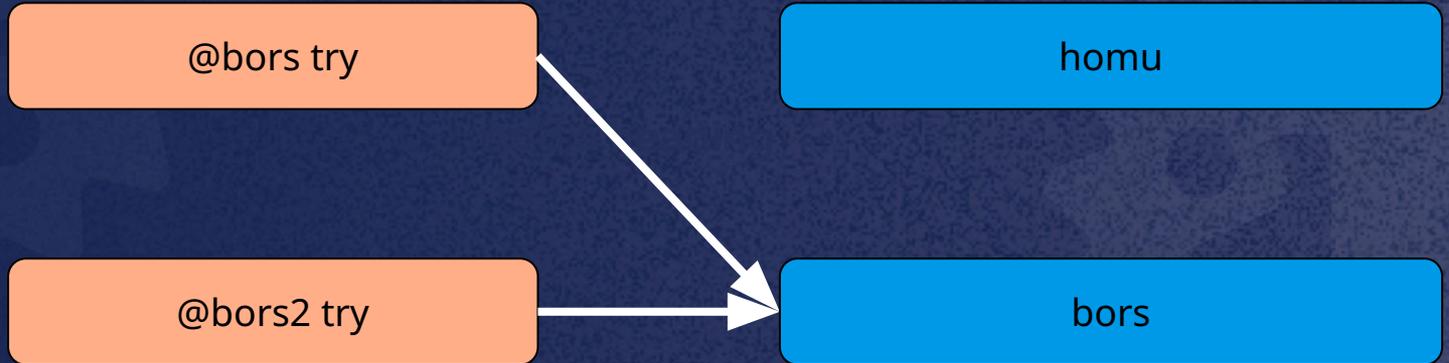


RDS

Bors

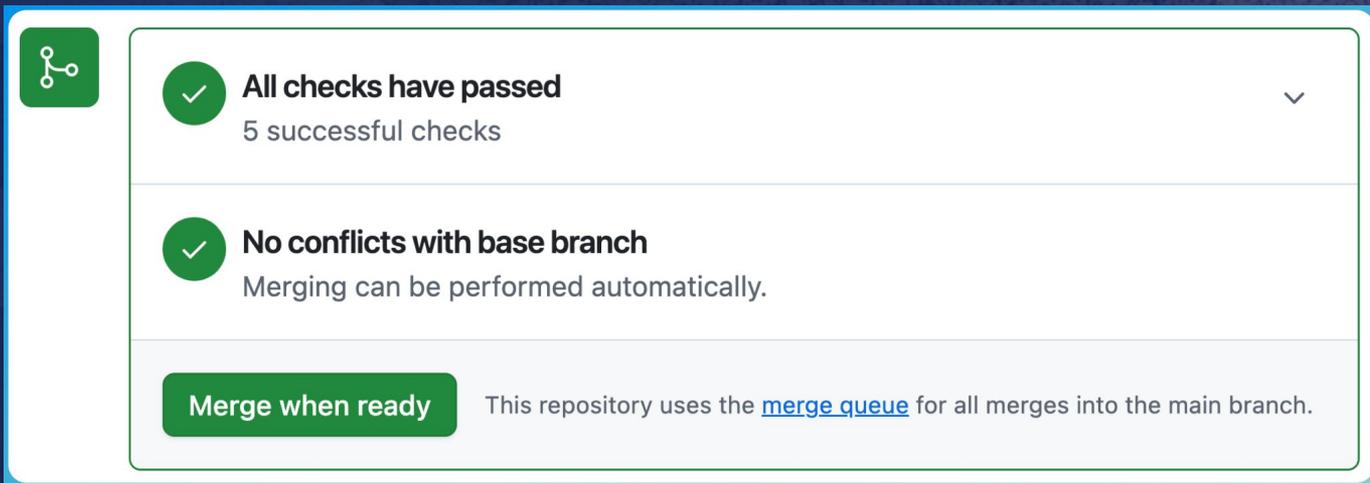


Bors



Bors

Bors only on rust-lang/rust



The screenshot displays a Bors merge queue interface. On the left, there is a green square icon with a white branching diagram. The main area contains two status items, each with a green checkmark in a circle. The first item is 'All checks have passed' with a subtext '5 successful checks' and a downward arrow. The second item is 'No conflicts with base branch' with subtext 'Merging can be performed automatically.'. At the bottom, there is a green button labeled 'Merge when ready' and a text note: 'This repository uses the [merge queue](#) for all merges into the main branch.'

docs.github.com/en/repositories/configuring-branches-and-merges-in-your-repository/configuring-pull-request-merges/managing-a-merge-queue

Bors

Merge queue `main`

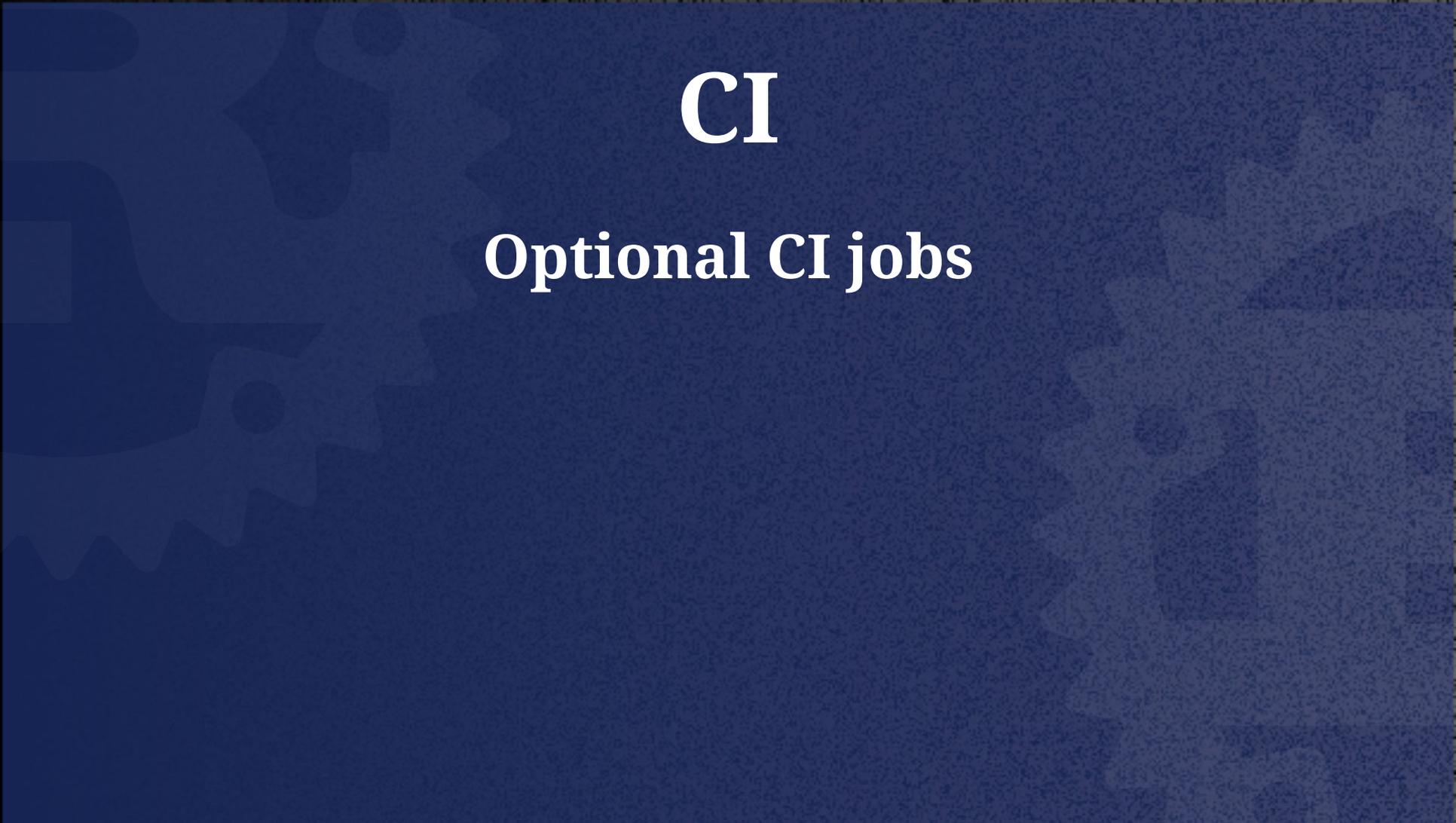
 1 Queued



Change allow dead code attribute to crate-level

#6 opened and enqueued by  **marcoieni** • enqueued less than a minute ago



The background is a dark blue color with a subtle pattern of interlocking gears in a lighter shade of blue. The gears are arranged in a way that they appear to be meshing together, creating a mechanical or industrial aesthetic.

CI

Optional CI jobs

team



GitHub



Zulip



Mailgun



github-actions bot commented [2 days ago](#)



▼ Dry-run check results

```
[WARN sync_team] sync-team is running in dry mode, no changes will be applied.  
[INFO sync_team] synchronizing github  
[INFO sync_team] 📁 Team Diffs:  
  📄 Editing team 'rust-lang/all':  
    Adding member 'Sakib25800' with member role  
  📄 Editing team 'rust-lang/infra-bors':  
    Adding member 'Sakib25800' with member role
```



team

**Manage all repositories of the
rust-lang organization in the team
repository**

team

**Merge team and sync-team
repositories**

team

**Removing inactive members from
our GitHub organizations**

Simpleinfra

Terraform
Ansible

I updated all terraform providers to
the latest version

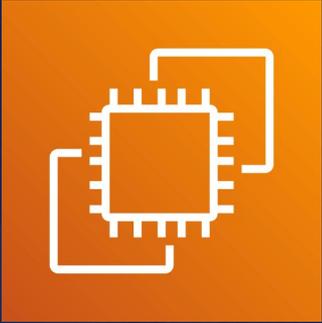
Agenda

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- What's next

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- **What's next**

Docs.rs



EC2



Cloudfront CDN



RDS



ECS

Hardware Security Keys



Secure deployments

The background of the slide is a dark blue color with a subtle, repeating pattern of gear icons in a lighter shade of blue. The gears are arranged in a way that suggests a mechanical or industrial theme, consistent with the title 'Secure deployments'.

Better devx for Rust contributors

The background is a dark blue gradient with several faint, semi-transparent gear icons scattered across it, suggesting a technical or engineering theme.

Single Sign On



Continue with Google

- **Easier onboarding/offboarding**
- **Security**

Single Sign On

- **Easier onboarding/offboarding**

Third-parties CI runners

The background of the slide is a dark blue color with a subtle pattern of faint, light blue gear icons scattered across it.

GitHub Actions linting

zizmor.sh

```
error[excessive-permissions]: overly broad permissions
--> .github/workflows/ci.yml:24:3
24 |   packages: write
    |   ^^^^^^^^^^^^^^^^^ packages: write is overly broad at the workflow level
= note: audit confidence → High
```

IaC everywhere



HashiCorp

Terraform

Trusted publishing

Use trusted publishing for all crates maintained by the Rust project

Learn more

github.com/rust-lang/infra-team

- Documentation
- Talks
- Interviews

Join us!



Jan David Nose

GitHub: [jdno](#)
Team leader



Jieyou Xu

GitHub: [jjeyouxu](#)



Marco Ieni

GitHub: [marcoieni](#)



Pietro Albini

GitHub: [pietroalbini](#)



Jake Goulding

GitHub: [shepmaster](#)
Team leader



Jakub Beránek

GitHub: [Kobzol](#)



Mark Rousskov

GitHub: [Mark-Simulacrum](#)



Thank you!

rustfoundation.org



Quote."



Big Number%

rustfoundation.org



rustfoundation.org



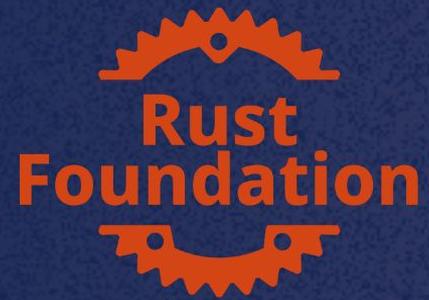
rustfoundation.org





Thank you!

rustfoundation.org



rustfoundation.org