

COME RUST SEMPLIFICA L'OPEN-SOURCE

 ieni.dev

 @marcoieni – ieni.dev/t

 @marcoieni – ieni.dev/yt

 @marcoieni – ieni.dev/in

 @marcoieni – ieni.dev/gh



RUST/TS SOFTWARE ENG



RUSTSHIP PODCAST



👉 ieni.dev/rustship

RUST HTTP WORKSHOP



github.com/marcoieni/rust-api-workshop

PER COSA È NOTO RUST?

- prestazioni 
- sicurezza 

C'È ANCHE ALTRO

C'È ANCHE ALTRO



AGENDA



CARGO

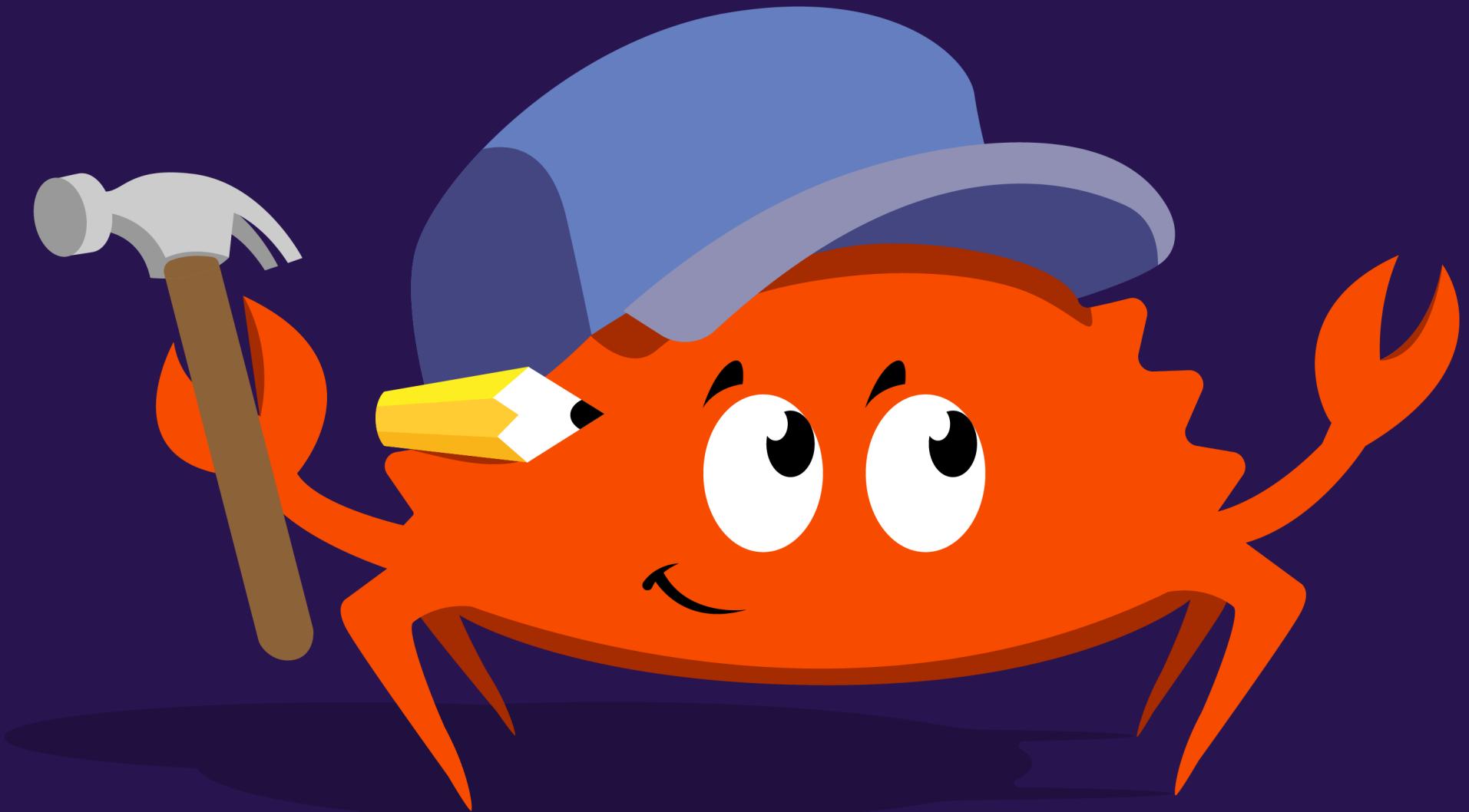
Package manager di Rust. Permette di:

- **Formattare il codice**
- **Analizzare il codice (linter)**
- Eseguire **test**
- Scaricare e compilare le **dipendenze**
- Generare **documentazione**

COMMUNITY TOOLS

- Rilevare vulnerabilità e licenze non compatibili.
- Rilevare API-breaking changes.
- Aggiornare il changelog e rilasciare progetti.

CARGO DEMO



CARGO: VANTAGGI

- Makefiles o package.json ❌
- I comandi di cargo funzionano in tutti i programmi Rust 💪
- Installato di default 😊

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EmbarkStudios/cargo-deny

✗ Cargo plugin for linting your dependencies 🦀

STARS

1362

FORKS

66

ISSUES

43

PULLS

0

```
$ cargo install cargo-deny
```

deny.toml

```
1 [licenses]
2
3 unlicensed = "deny"
4
5 allow = [
6     "MIT",
7     "ISC",
8     "Apache-2.0",
9     "BSD-3-Clause",
10    "CC0-1.0",
11    "Unicode-DFS-2016",
12    "MPL-2.0"
13 ]
```

Cargo.toml

```
1 [package]
2 name = "my_crate"
3 version = "0.1.0"
4 license = "MIT OR Apache-2.0"
```

Parse LICENSE(-*) files

 LICENSE-APACHE	project init	2 years ago
 LICENSE-MIT	chore(mit): remove email	last year

Cargo.toml

```
1 [package]
2 name = "my_crate"
3 version = "0.1.0"
```

```
$ cargo deny check licenses
```

Cargo.toml

```
1 [package]
2 name = "my_crate"
3 version = "0.1.0"
4 license = "Apache-2.0"
```

```
$ cargo deny check licenses
```

```
error[rejected]: failed to satisfy license requirements
  └── my_crate 0.1.0 (path+file:///crates/my-crate):4:12
      4   license = "Apache-2.0"
          ^^^^^^^^
          |
          license expression retrieved via
          Cargo.toml `license` rejected:
          not explicitly allowed
      = my_crate v0.1.0
```

deny.toml

```
[licenses]

allow = [
    "Apache-2.0",
]
```

```
$ cargo deny check licenses
```

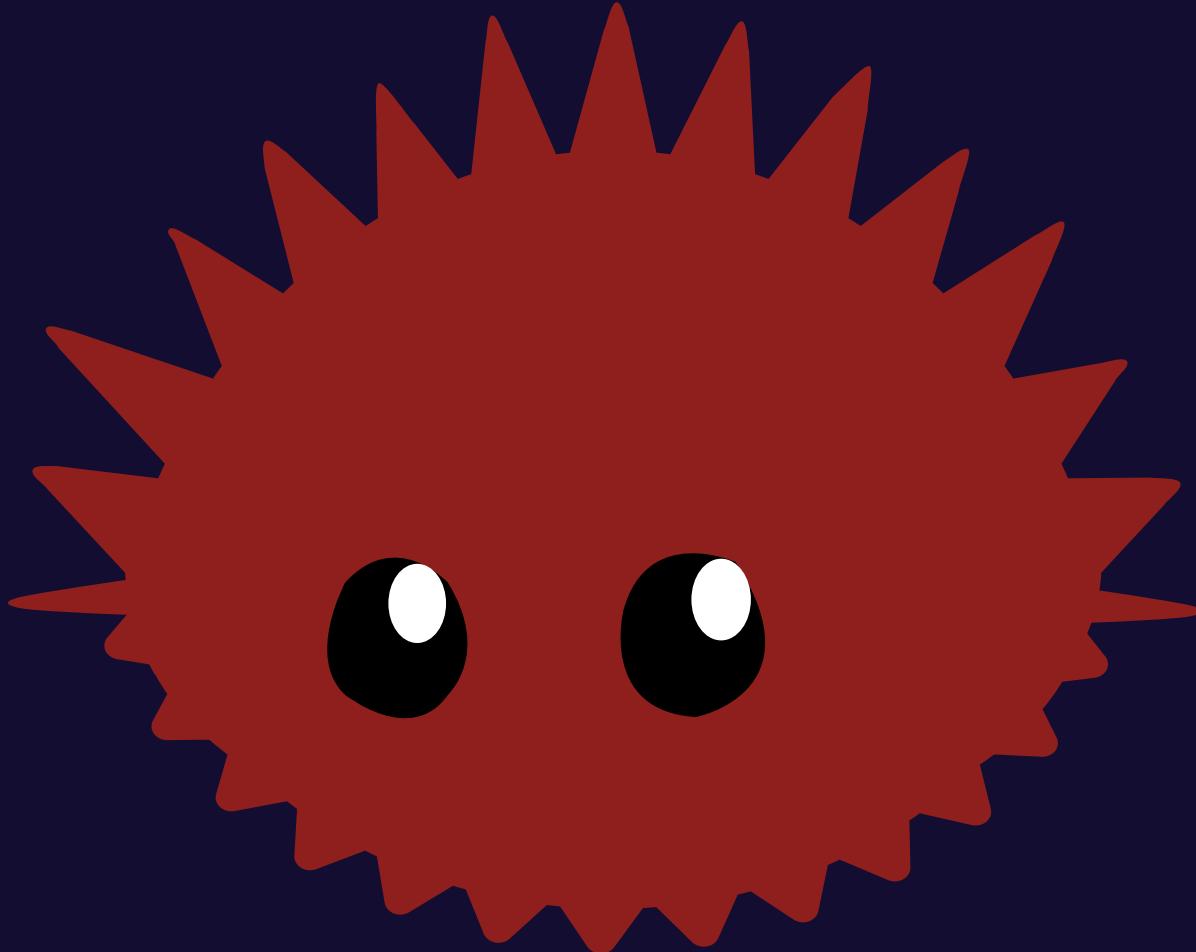
```
licenses ok
```

Cargo.toml

```
1 [package]
2 name = "my_crate"
3 version = "0.1.0"
4 license = "Apache-2.0"
5
6 [dependencies]
7 tokio = "=1.22.0"
```

```
error[rejected]: failed to satisfy license requirements
  └── tokio 1.22.0 (registry+https://github.com/rust-lang/crate)
      |     license = "MIT"
      |     ^^^
      |
      |     license expression retrieved via Cargo.toml `li
      |     rejected: not explicitly allowed
      |
      = tokio v1.22.0
        └── my_crate v0.1.0
```

CONTROLLARE VULNERABILITÀ



```
1 [package]
2 name = "my_crate"
3 version = "0.1.0"
4 license = "Apache-2.0"
5
6 [dependencies]
7 tokio = "=1.22.0"
```

```
$ cargo deny check advisories
```

```
error[vulnerability]: reject_remote_clients Configuration corruption
  └─ /Users/marcoieni/tmp/my_crate/Cargo.lock:4:1
    4   tokio 1.22.0 [...]
      = ID: RUSTSEC-2023-0001
      = Advisory: https://rustsec.org/advisories/RUSTSEC-2023-0001
      = On Windows, configuring a named pipe server with [...]
      = Announcement: https://github.com/tokio-rs/tokio/security/[...].
      = Solution: Upgrade to >=1.18.4, <1.19.0 OR >=1.20.3, <1.21.0
                    OR >=1.23.1 (try `cargo update -p tokio`)
      = tokio v1.22.0
        └─ my_crate v0.1.0
```

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obi1kenobi/cargo-semver-checks

Scan your Rust crate for semver violations.

STARS

619

FORKS

44

ISSUES

83

PULLS

6

```
1- pub fn hey() {  
2 |     println!("Hello, world!");  
3 } → 1+ pub fn hello() {  
2 |     println!("Hello, world!");  
3 }
```

1.4.5 → 1.5.0 ✗

1.4.5 → 2.0.0 ✓

CARGO-SEMVER-CHECKS DEMO

```
$ cargo install cargo-semver-checks
```

```
cargo-semver-checks \
    semver-checks \
    check-release \
    -p marco-test-one
```

--- failure function_missing: pub fn removed or renamed ---

Description:

A publicly-visible function cannot be imported by its prior path.
A `pub use` may have been removed, or the function itself may have
been renamed or removed entirely.

ref: <https://doc.rust-lang.org/cargo/reference/semver.html#item-remove>

impl: https://github.com/ob1kenobi/cargo-semver-check/tree/v0.22.1/src/lints/function_missing.ron

Failed in:

function marco_test_one::hey, previously in file
marco-test-one-0.3.2/src/lib.rs:1

semver requires new major version: 1 major and 0 minor checks failed

COME FUNZIONA?

COME FUNZIONA?



GENERATING HTML DOCS

```
$ cargo doc --open
```

The screenshot shows a generated HTML documentation page. At the top, there is a search bar with the placeholder text "Click or press 'S' to search, '?' for more options...". To the right of the search bar are two icons: a question mark "?" and a gear icon.

The main title is "Crate [marco_test_one](#)". To the right of the title are two links: "source" and a button with a minus sign [-].

A large section titled "Functions" is visible, with a single function named "hi" listed below it.

GENERATING JSON DOCS

```
$ rustdoc +nightly -Z unstable-options \
    src/lib.rs --output-format json
$ cat doc/lib.json
```

```
1 ...
2 {
3     "id": "0:3:1694",
4     "crate_id": 0,
5     "name": "hey",
6     "span": {
7         "filename": "src/lib.rs",
8         "begin": [
9             1, // Line number
10            0 // Column
11        ],
12        "end": [
13            3, // Line number
14            1 // Column
15        ]
16    }
17}
```

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$ rustdoc +nightly -Z unstable-options \
    src/lib.rs --output-format json
$ cat doc/lib.json
```

```
1 ...
2 {
3     "id": "0:3:1694",
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15        ]
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```

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```
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14            1 // Column
15        ]
16    }
17}
```

COMMUNITY TOOLS

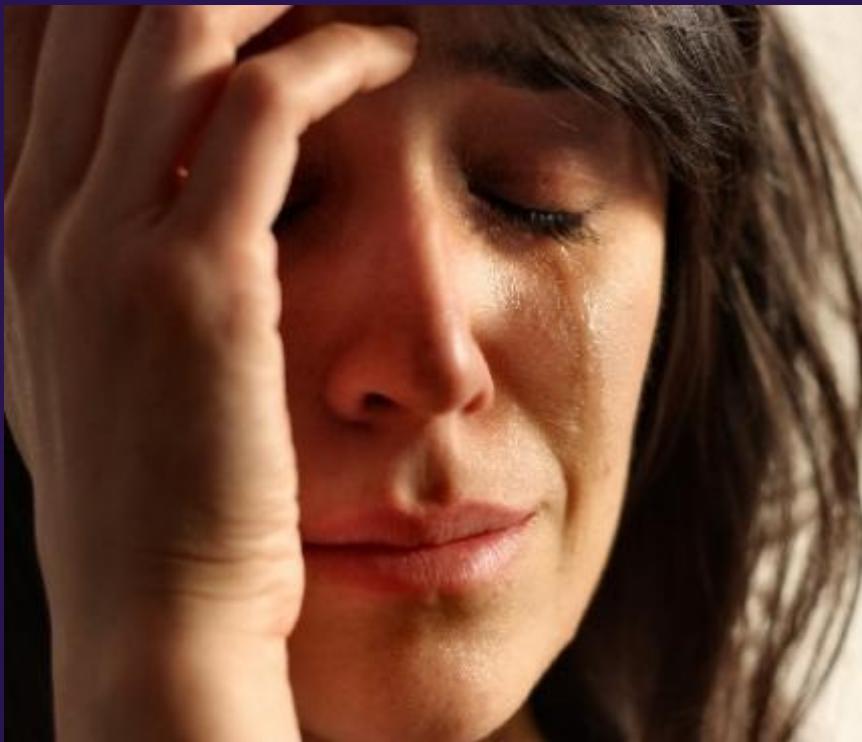
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RILASCIARE UNA
NUOVA VERSIONE

RILASCIARE UNA NUOVA VERSIONE



1. NOME DELLA NUOVA VERSIONE

1.4.5 → 1.4.6

1.4.5 → 1.5.0

1.4.5 → 2.0.0

1. NOME DELLA NUOVA VERSIONE

greet with more enthusiasm



Marcoleni committed on May 10

change greeting



Marcoleni committed on May 10

say hi



Marcoleni committed on May 10



1. NOME DELLA NUOVA VERSIONE

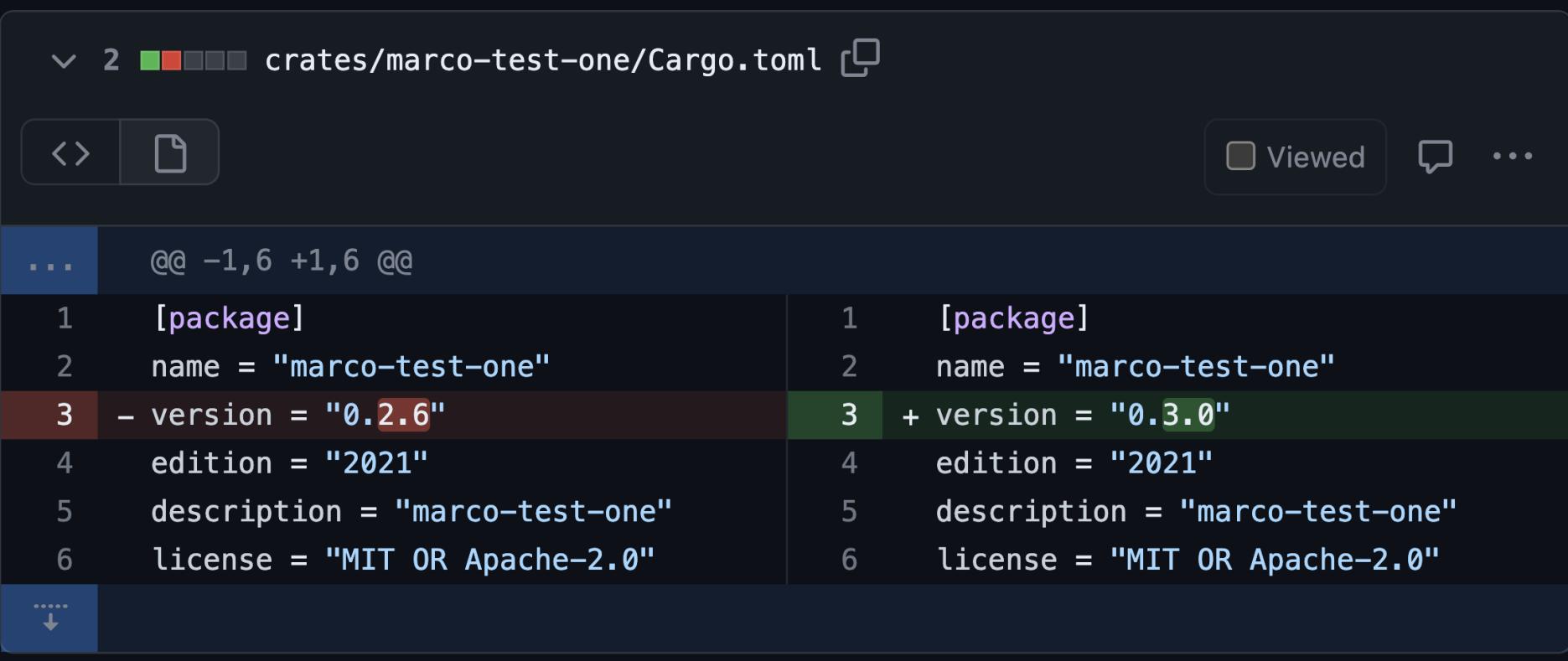


👉 conventionalcommits.org

1. NOME DELLA NUOVA VERSIONE

```
1- pub fn hey() {  
2     println!("Hello, world!");  
3 } → 1+ pub fn hello() {  
2     println!("Hello, world!");  
3 }
```

2. AGGIORNARE LA VERSIONE NEL CARGO.TOML



The screenshot shows a GitHub pull request interface comparing two versions of the file `Cargo.toml`. The left column shows the previous state (version 0.2.6) and the right column shows the updated state (version 0.3.0). The code changes are highlighted with color-coded backgrounds: red for deleted code and green for added code.

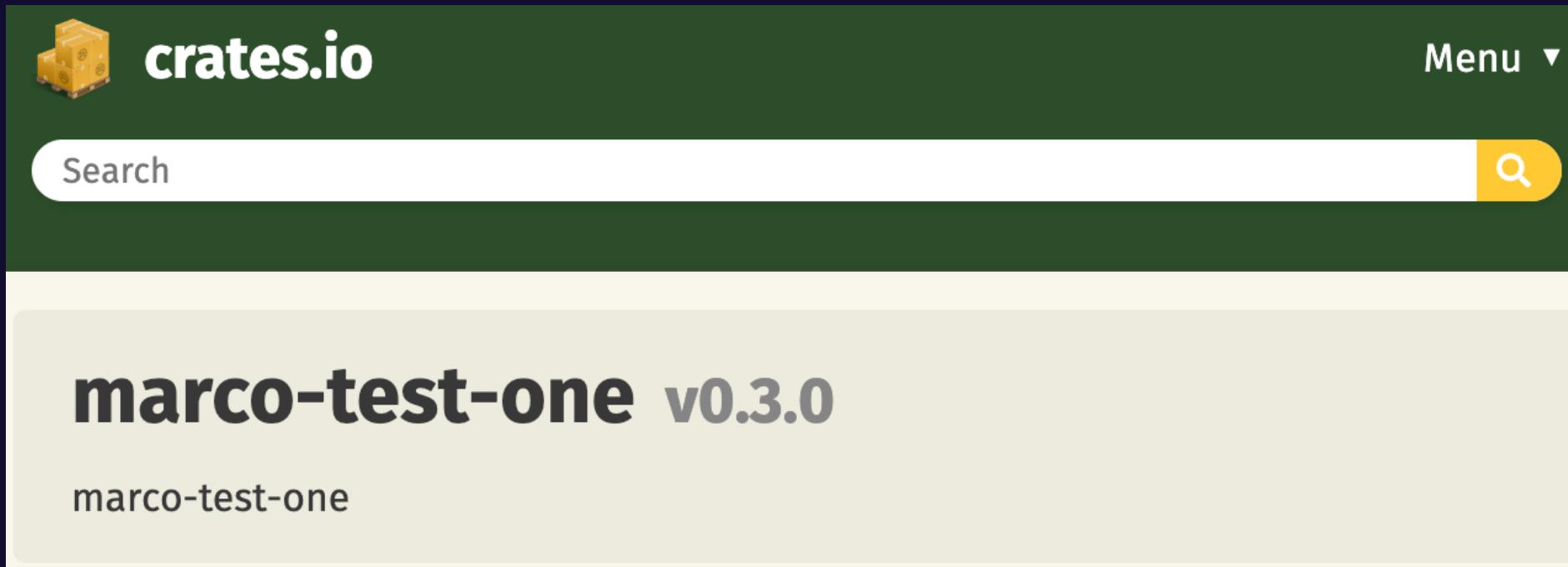
Line	Deleted Content (v0.2.6)	Added Content (v0.3.0)
1	[package]	[package]
2	name = "marco-test-one"	name = "marco-test-one"
3	- version = "0.2.6"	+ version = "0.3.0"
4	edition = "2021"	edition = "2021"
5	description = "marco-test-one"	description = "marco-test-one"
6	license = "MIT OR Apache-2.0"	license = "MIT OR Apache-2.0"

3. AGGIORNARE IL CHANGELOG

6	6
7 ## [Unreleased]	7 ## [Unreleased]
8	8
9 ## [0.2.6] https://github.com/MarcoIeni/rust-workspace-example/compare/marco-test-one-v0.2.5...marco-test-one-v0.2.6 - 2023-05-10	9 ## [0.3.0] https://github.com/MarcoIeni/rust-workspace-example/compare/marco-test-one-v0.2.6...marco-test-one-v0.3.0 - 2023-05-10 + + ### Added + - say hi +
14 ## [0.2.6] https://github.com/MarcoIeni/rust-workspace-example/compare/marco-test-one-v0.2.5...marco-test-one-v0.2.6 - 2023-05-10	

4. PUBBLICARE SU CRATES.IO

```
$ cargo publish
```



5. GIT TAG

The screenshot shows a dark-themed GitHub interface. At the top, there are two tabs: "Releases" and "Tags". The "Tags" tab is highlighted with a blue background and white text. Below the tabs, the word "Tags" is displayed next to a tag icon. A single tag entry is shown: "marco-test-one-v0.3.0". To the right of the tag name are three dots, a green "Verified" badge, and another set of three dots. Below the tag name, there are several icons and text labels: a clock icon followed by "2 days ago", a commit hash icon followed by "a0fc4e0", a ZIP file icon followed by "zip", a TAR.GZ file icon followed by "tar.gz", and a document icon followed by "Notes".

Releases Tags

Tags

marco-test-one-v0.3.0 ... Verified ...

2 days ago a0fc4e0 zip tar.gz Notes

6. GITHUB RELEASE

The screenshot shows a GitHub release interface. At the top, there are tabs for 'Releases' (which is selected) and 'Tags'. A button for 'Draft a new release' and a search bar labeled 'Find a release' are also present. Below this, a release card is displayed for 'marco-test-one-v0.3.0', which was published '2 days ago'. The card includes details from the commit 'github-actions' (commit hash: a0fc4e0), a 'Compare' link, and edit/delete icons. The title of the release is 'marco-test-one-v0.3.0'. The 'Added' section lists a single item: 'say hi'. The 'Assets' section shows a count of 2, indicated by a '2' in a circle next to the 'Assets' label. A smiley face icon is also visible.

Releases Tags Draft a new release

Find a release

2 days ago

github-actions marco-test-one-v0.3.0 a0fc4e0 Compare

marco-test-one-v0.3.0

Added

- say hi

► Assets 2

😊

POSSIAMO AUTOMATIZZARE?



Releasing
from the terminal



Releasing
from CI

Release-plz

Release Rust crates from CI with a Release PR



👉 release-plz.ieni.dev

RELEASE-PLZ

chore: release #158

[Open](#) github-actions wants to merge 1 commit into `main` from `release-plz/2023-05-10T21-55-11Z`

Conversation 0 Commits 1 Checks 0 Files changed 7

github-actions bot commented 10 minutes ago

Contributor ...

New release

- marco-test-one : 0.2.6 -> 0.3.0 (⚠ API breaking changes)
- marco-test-three : 0.1.11 -> 0.1.12
- marco-test-two : 0.4.5 -> 0.4.6

⚠ marco-test-one breaking changes

```
--- failure function_missing: pub fn removed or renamed ---
```

Description:
A publicly-visible function cannot be imported by its prior path. A `pub use` may have been removed, or the function ref: <https://doc.rust-lang.org/cargo/reference/semver.html#item-remove>
impl: https://github.com/obilkenobi/cargo-semver-check/tree/v0.20.0/src/lints/function_missing.ron

Failed in:
function `marco_test_one::hey`, previously in file `/tmp/.tmpb9zZz1/marco-test-one/src/lib.rs:1`

▶ Changelog

This PR was generated with [release-plz](#).

⊕

chore: release 939fc60

RELEASE-PLZ

chore: release #158

[Open](#) github-actions wants to merge 1 commit into `main` from `release-plz/2023-05-10T21-55-11Z`

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--- failure function_missing: pub fn removed or renamed ---

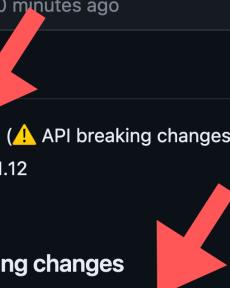
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RELEASE-PLZ

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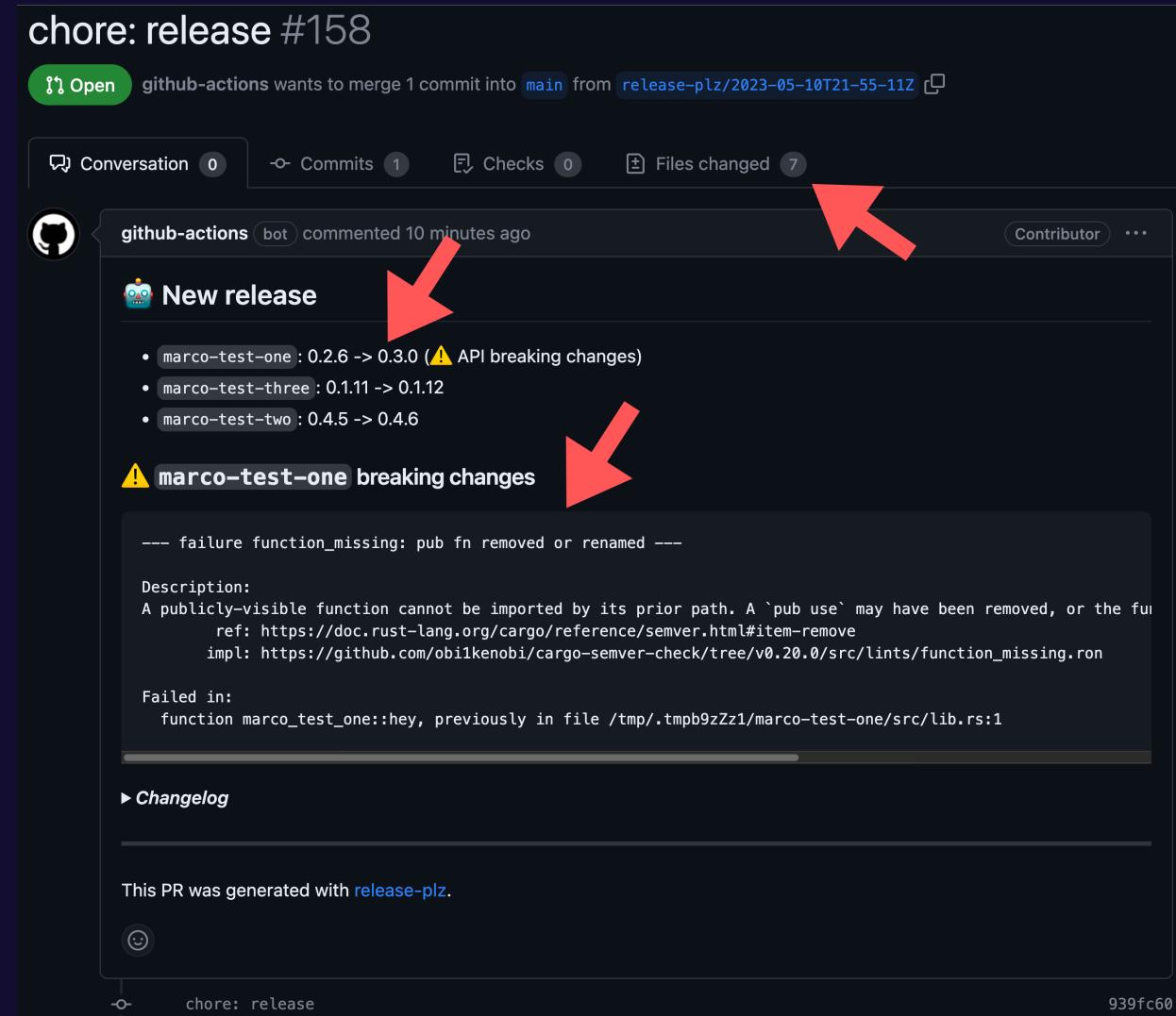
⚠ marco-test-one breaking changes

```
--- failure function_missing: pub fn removed or renamed ---  
  
Description:  
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ref: https://doc.rust-lang.org/cargo/reference/semver.html#item-remove  
impl: https://github.com/obilkenobi/cargo-semver-check/tree/v0.20.0/src/lints/function\_missing.ron  
  
Failed in:  
function marco_test_one::hey, previously in file /tmp/.tmpb9zZz1/marco-test-one/src/lib.rs:1
```

▶ Changelog

This PR was generated with [release-plz](#).

chore: release 939fc60



RELEASE-PLZ GITHUB ACTION

```
jobs:  
  release-plz:  
    name: Release-plz  
    runs-on: ubuntu-latest  
    steps:  
      - name: Checkout repository  
        uses: actions/checkout@v3  
        with:  
          fetch-depth: 0  
      - name: Install Rust toolchain  
        uses: dtolnay/rust-toolchain@stable  
      - name: Run release-plz  
        uses: MarcoIeni/release-plz-action@v0.5  
        env:  
          GITHUB_TOKEN: ${{ secrets.GITHUB_TOKEN }}  
          CARGO_REGISTRY_TOKEN: ${{ secrets.CARGO_REGISTRY_TOKEN }}
```

RELEASE-PLZ FUTURE



Q&A

WARNING

Rust is highly addictive. Once you start getting into it, you may find yourself wanting to rewrite your entire codebase in Rust.

This can lead to a serious case of Rust fever, which can only be cured by writing more Rust code. Symptoms include an obsession with memory safety and an inability to stop talking about Rust at parties.

Use Rust responsibly and at your own risk.



ieni.dev



@marcoieni — ieni.dev/t



@marcoieni — ieni.dev/yt



@marcoieni — ieni.dev/in