rustfmt Rust code formatter

CONCEPTS

cargo fmt reads the edition from Cargo.toml; bare rustfmt assumes 2015 unless told otherwise.

Source files *.rs
↓ parse (edition)
rustfmt rustfmt.toml + style_edition
↓ emit
Result files, stdout or diff

edition controls parsing; style_edition controls the formatting rules. Set both in rustfmt.toml.

Unstable options need nightly plus unstable_features = true; stable rustfmt ignores them with a warning.

INSTALL AND RUN

rustup component add rustfmt
Install on the stable toolchain

rustup component add rustfmt --toolchain nightly
Install on nightly

cargo fmt
Format all targets of the crate

cargo fmt --all
Format every workspace member

cargo fmt -p *<crate>*
Format one package

cargo fmt -- *<rustfmt-args>*
Pass flags through to rustfmt

cargo +nightly fmt
Run the nightly formatter

rustfmt *<file.rs>*
Format a file and its out-of-line modules

echo 'fn main(){}' | rustfmt
Format stdin to stdout

rustfmt --help=config
List config options and defaults

CHECKING AND OUTPUT

cargo fmt --check
Exit 1 and print a diff if unformatted

CHECKING AND OUTPUT (cont.)

cargo fmt --all -- --check
Check the whole workspace in CI

rustfmt --check *<file.rs>*
Check one file without writing

rustfmt --emit stdout *<file.rs>*
Print the result instead of writing

Exit codes: --check returns 1 on needed changes; other modes return 1 only on errors (parse failure).

CONFIGURATION

rustfmt.toml / .rustfmt.toml
Config file in the project or any parent dir

rustfmt --print-config default rustfmt.toml
Write all defaults to a file

rustfmt --print-config current *<file.rs>*
Show the effective config for a file

rustfmt --print-config minimal rustfmt.toml
Write only non-default values

rustfmt --config-path *<dir|file>* *<file.rs>*
Use a specific config

rustfmt --config max_width=80 *<file.rs>*
Override an option from the CLI

cargo fmt -- --config max_width=80,tab_spaces=2
Override options via cargo

edition = "2021"
Parse with this language edition

style_edition = "2024"
Pick the style guide edition

rustfmt --edition 2021 *<file.rs>*
Set the edition on the command line

rustfmt --style-edition 2024 *<file.rs>*
Set the style edition on the CLI

Set edition and style_edition in rustfmt.toml so cargo fmt and plain rustfmt agree.

COMMON OPTIONS (STABLE)

max_width = 100
Maximum line width

tab_spaces = 4
Spaces per indent level

hard_tabs = false
Indent with tabs instead of spaces

newline_style = "Auto"
Line endings: Auto, Native, Unix, Windows

use_small_heuristics = "Default"
Scale small-width limits: Off, Max, Default

merge_derives = true
Merge adjacent #[derive] attributes

reorder_imports = true
Sort use statements within a group

NIGHTLY-ONLY OPTIONS

unstable_features = true
Opt in to unstable options

imports_granularity = "Crate"
Merge imports: Preserve, Crate, Module, Item, One

group_imports = "StdExternalCrate"
Group imports: Preserve, StdExternalCrate, One

wrap_comments = true
Re-wrap long comments

format_code_in_doc_comments
Format Rust code blocks in docs

ignore = ["*<path>*"]
Skip files/dirs (gitignore patterns)

Only some options are stable; the rest print a warning and are skipped on a stable toolchain.

SKIPPING AND ATTRIBUTES

#[rustfmt::skip]
Do not format the next item or statement