



Linux Ubuntu 22.4.5 Manual Pages on command 'rustc.1'

\$ man rustc.1

RUSTC(1) User Commands RUSTC(1)

NAME

rustc - The Rust compiler

SYNOPSIS

rustc [OPTIONS] INPUT

DESCRIPTION

This program is a compiler for the Rust language, available at <https://www.rust-lang.org>.

OPTIONS

-h, --help

Display the help message.

--cfg SPEC

Configure the compilation environment.

-L [KIND=]PATH

Add a directory to the library search path. The optional KIND can be one of:

dependency

only lookup transitive dependencies here

crate only lookup local `extern crate` directives here

native only lookup native libraries here

framework

only look for OSX frameworks here

all look for anything here (the default)

`-l [KIND=]NAME`

Link the generated crate(s) to the specified library NAME. The optional KIND can be one of static, dylib, or framework. If omitted, dylib is assumed.

`--crate-type [bin|lib|rlib|dylib|cdylib|staticlib|proc-macro]`

Comma separated list of types of crates for the compiler to emit.

`--crate-name NAME`

Specify the name of the crate being built.

`--emit [asm|llvm-bc|llvm-ir|obj|metadata|link|dep-info|mir][=PATH]`

Configure the output that rustc will produce. Each emission may also have an optional explicit output PATH specified for that particular emission kind.

This path takes precedence over the `-o` option.

`--print [crate-name|file-names|sysroot|target-libdir|cfg|target-list|target-cpus|target-features|relocation-models|code-models|tls-models|target-spec-json|native-static-libs|stack-protector-strategies|link-args]`

Comma separated list of compiler information to print on stdout.

`-g` Equivalent to `-C debuginfo=2`.

`-O` Equivalent to `-C opt-level=2`.

`-o FILENAME`

Write output to FILENAME. Ignored if multiple `--emit` outputs are specified which don't have an explicit path otherwise.

`--out-dir DIR`

Write output to compiler-chosen filename in DIR. Ignored if `-o` is specified.

Defaults to the current directory.

`--explain OPT`

Provide a detailed explanation of an error message.

`--test` Build a test harness.

`--target TARGET`

Target triple for which the code is compiled. This option defaults to the host's target triple. The target triple has the general format

`<arch><sub><vendor><sys><abi>`, where:

`<arch>` x86, arm, thumb, mips, etc.

<sub> for example on ARM: v5, v6m, v7a, v7m, etc.

<vendor>

pc, apple, nvidia, ibm, etc.

<sys> none, linux, win32, darwin, cuda, etc.

<abi> eabi, gnu, android, macho, elf, etc.

-W help

Print 'lint' options and default settings.

-W OPT, --warn OPT

Set lint warnings.

-A OPT, --allow OPT

Set lint allowed.

-D OPT, --deny OPT

Set lint denied.

-F OPT, --forbid OPT

Set lint forbidden.

-C FLAG[=VAL], --codegen FLAG[=VAL]

Set a codegen?related flag to the value specified. Use -C help to print available flags. See CODEGEN OPTIONS below.

-V, --version

Print version info and exit.

-v, --verbose

Use verbose output.

--remap-path-prefix from=to

Remap source path prefixes in all output, including compiler diagnostics, debug information, macro expansions, etc. The from=to parameter is scanned from right to left, so from may contain '=', but to may not.

This is useful for normalizing build products, for example by removing the current directory out of pathnames emitted into the object files. The replacement is purely textual, with no consideration of the current system's pathname syntax. For example --remap-path-prefix foo=bar will match foo/lib.rs but not ./foo/lib.rs.

--extern NAME=PATH

Specify where an external rust library is located. These should match extern

declarations in the crate's source code.

`--sysroot PATH`

Override the system root.

`-Z FLAG`

Set unstable / perma-unstable options. Use `-Z help` to print available options.

`--color auto|always|never`

Configure coloring of output:

`auto` colorize, if output goes to a tty (default);

`always` always colorize output;

`never` never colorize output.

CODEGEN OPTIONS

`linker=/path/to/cc`

Path to the linker utility to use when linking libraries, executables, and objects.

`link-args='-flag1 -flag2'`

A space-separated list of extra arguments to pass to the linker when the linker is invoked.

`lto` Perform LLVM link-time optimizations.

`target-cpu=help`

Selects a target processor. If the value is 'help', then a list of available CPUs is printed.

`target-feature='+feature1,-feature2'`

A comma-separated list of features to enable or disable for the target. A preceding '+' enables a feature while a preceding '-' disables it. Available features can be discovered through `lrc -mcpu=help`.

`passes=val`

A space-separated list of extra LLVM passes to run. A value of 'list' will cause rustc to print all known passes and exit. The passes specified are appended at the end of the normal pass manager.

`llvm-args='-arg1 -arg2'`

A space-separated list of arguments to pass through to LLVM.

`save-temps`

If specified, the compiler will save more files (.bc, .o, .no-opt.bc) generated throughout compilation in the output directory.

`rpath` If specified, then the `rpath` value for dynamic libraries will be set in either dynamic library or executable outputs.

`no-prepopulate-passes`

Suppresses pre-population of the LLVM pass manager that is run over the module.

`no-vectorize-loops`

Suppresses running the loop vectorization LLVM pass, regardless of optimization level.

`no-vectorize-slp`

Suppresses running the LLVM SLP vectorization pass, regardless of optimization level.

`soft-float`

Generates software floating point library calls instead of hardware instructions.

`prefer-dynamic`

Prefers dynamic linking to static linking.

`no-integrated-as`

Force usage of an external assembler rather than LLVM's integrated one.

`no-redzone`

Disable the use of the redzone.

`relocation-model=[pic,static,dynamic-no-pic]`

The relocation model to use. (Default: pic)

`code-model=[small,kernel,medium,large]`

Choose the code model to use.

`metadata=val`

Metadata to mangle symbol names with.

`extra-filename=val`

Extra data to put in each output filename.

`codegen-units=n`

Divide crate into n units to optimize in parallel.

`remark=val`

Print remarks for these optimization passes (space separated, or "all").

no-stack-check

Disable checks for stack exhaustion (a memory? safety hazard!).

debuginfo=val

Debug info emission level:

- 0 no debug info;
- 1 line?tables only (for stacktraces and breakpoints);
- 2 full debug info with variable and type information.

opt-level=VAL

Optimize with possible levels 0?3, s (optimize for size), or z (for minimal size)

ENVIRONMENT

Some of these affect only test harness programs (generated via `rustc --test`); others affect all programs which link to the Rust standard library.

RUST_TEST_THREADS

The test framework Rust provides executes tests in parallel. This variable sets the maximum number of threads used for this purpose. This setting is overridden by the `--test-threads` option.

RUST_TEST_NOCAPTURE

If set to a value other than "0", a synonym for the `--nocapture` flag.

RUST_MIN_STACK

Sets the minimum stack size for new threads.

RUST_BACKTRACE

If set to a value different than "0", produces a backtrace in the output of a program which panics.

EXAMPLES

To build an executable from a source file with a main function:

```
$ rustc -o hello hello.rs
```

To build a library from a source file:

```
$ rustc --crate-type=lib hello-lib.rs
```

To build either with a crate (.rs) file:

```
$ rustc hello.rs
```

To build an executable with debug info:

```
$ rustc -g -o hello hello.rs
```

SEE ALSO

`rustdoc(1)`

BUGS

See <https://github.com/rust-lang/rust/issues> for issues.

AUTHOR

See <https://github.com/rust-lang/rust/graphs/contributors> or use ``git log --all --format='%cN <%cE>' | sort -u`` in the rust source distribution.

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rustc <INSERT VERSION HERE>

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RUSTC(1)