Ruff Python lint and format

Config pyproject.toml / ruff.toml → `select rules` → **ruff check** violations → `--fix` → **ruff format** layout → `--check in CI` → **Clean tree** commit

CONCEPTS

Two tools in one binary: check lints (and fixes), format rewrites layout. Run both; they do not overlap.

Since 0.17 the default is a broad curated set (F, E4/E7/E9, B, UP, SIM, RUF, PL and more). See it with ruff check --show-settings --isolated; select replaces it, extend-select adds.

CHECK

ruff check
Lint current directory

ruff check *<path>*...
Lint given files or dirs

ruff check --fix
Apply safe fixes

ruff check --diff
Preview fixes as a diff

ruff check --unsafe-fixes --fix
Also apply unsafe fixes

ruff check --show-fixes
List what was fixed

ruff check --fix-only
Fix, do not report leftovers

ruff check --watch
Re-run on file changes

FORMAT

ruff format
Format current directory

ruff format *<path>*...
Format given files or dirs

ruff format --check
Fail if anything would change

ruff format --diff
Show changes, write nothing

ruff format --line-length *<n>*
Override line length

Format suppression comments

Comment	Effect
`# fmt: off / # fmt: on`	skip a region
`# fmt: skip`	skip one statement

RULE SELECTION

--select *<codes>*
Enable only these rules

--extend-select *<codes>*
Add rules to the current set

--ignore *<codes>*
Disable rules

--per-file-ignores *<glob>:<code>*
Ignore rules per path

RULE SELECTION (cont.)

--target-version *<py3xx>*
Minimum Python to assume

--statistics
Count violations per rule

ruff check --select I --fix
Sort imports (isort rules)

ruff check --select UP --fix
Modernise syntax (pyupgrade)

Popular rule prefixes

Prefix	From
`E / W`	pycodestyle
`F`	Pyflakes
`I`	isort
`B`	bugbear
`UP`	pyupgrade
`SIM`	simplify
`N`	pep8-naming
`C4`	comprehensions

SUPPRESSING

 # noqa: *<code>*
Ignore a rule on this line

 # noqa
Ignore all rules on this line

 # ruff: noqa: *<code>*
Ignore a rule for the file

ruff check --add-noqa
Insert noqa for all hits

EXPLORE

ruff rule *<code>*
Explain one rule

ruff config
List all settings

ruff config *<option>*
Describe one setting

OUTPUT AND FILES

--output-format *<fmt>*
Choose report format

--exclude *<pattern>*
Replace excluded paths

--extend-exclude *<pattern>*
Exclude more paths

--config *<file|key=value>*
Use a file or override a setting

CONFIG

pyproject.toml basics

```
[tool.ruff]
line-length = 100
target-version = "py312"
extend-exclude =
["migrations"]

[tool.ruff.lint]
select = ["E4", "E7", "E9",
"F", "I", "B"]
ignore = ["B008"]
```

CONFIG (cont.)

Per-file ignores

```
[tool.ruff.lint.per-file-
ignores]
"tests/**" = ["S101"]
"__init__.py" = ["F401"]
```

Formatter options

```
[tool.ruff.format]
quote-style = "double"
indent-style = "space"
docstring-code-format = true
```

ruff.toml (no tool. prefix)

```
line-length = 100

[lint]
extend-select = ["I"]

[format]
quote-style = "single"
```

EDITORS AND CI

ruff server
Run the language server

pre-commit hook

```
repos:
- repo: https://github.com/
astral-sh/ruff-pre-commit
  rev: <tag>
  hooks:
  - id: ruff-check
    args: [--fix]
  - id: ruff-format
```

GitHub Actions step

```
- run: pip install ruff
- run: ruff check --output-
format=github
- run: ruff format --check
```