Ruff Python lint and format

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 --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

RULE SELECTION

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

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

--ignore *<codes>*
Disable rules

--statistics
Count violations per rule

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

RULE SELECTION (cont.)

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

 # 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

OUTPUT AND FILES

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

--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"]
```

Per-file ignores

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