tox Test automation

Package build sdist/wheel → `install` → **Env** virtualenv in .tox/ → `deps` → **Install** deps + package → `commands` → **Run** exit code = result

CONCEPTS

tox builds a fresh virtualenv per environment, installs your package and deps, then runs the commands. Same steps locally and in CI.

Environment names are factors split on dashes: py313-django has factors py313 and django, which deps can key on.

RUNNING

`tox`
Run the envs in env_list

`tox -e <env>`
Run a single environment

`tox -e <e1>,<e2>`
Run several named environments

`tox -e <env> -- <args>`
Forward args to {posargs}

`tox -e ALL`
Run every defined environment

`tox -r -e <env>`
Recreate the env from scratch

`tox -f <factor>`
Run envs containing a factor

RUNNING (cont.)

`tox -m <label>`
Run envs under a label

`tox -s`
Skip missing interpreters

`tox -n -e <env>`
Build the env, skip the commands

`tox -v`
More verbose (repeat for more)

`tox -c <file>`
Use another config file or folder

PARALLEL

`tox p`
Run envs in parallel (alias of run-parallel)

`tox p -p <n>`
Limit to n parallel envs

`tox p -o`
Stream output live while running

`tox p -e <e1>,<e2>`
Parallel run of chosen envs

INSPECT

`tox l`
List envs with descriptions

`tox l -d`
List only default envs

INSPECT (cont.)

`tox c -e <env>`
Show the resolved config of an env

`tox c -e <env> -k <key>`
Show only chosen keys

`tox --version`
Show tox and plugin versions

OTHER COMMANDS

`tox quickstart`
Interactively create a config (alias q)

`tox exec -e <env> -- <cmd>`
Run any command inside an env

`tox devenv <dir>`
Create a dev virtualenv from an env

CONFIG FILE

`[tox]`
Core section in tox.ini

`env_list = <e1>, <e2>`
Default environments

`requires = tox≥4.2`
Needed tox and plugins (auto-provisioned)

CONFIG FILE (cont.)

`labels = <name>=<e1>,<e2>`
Name a group of envs

`[testenv]`
Base section for all envs

`[testenv:<env>]`
Settings for one env

`description = <text>`
Shown by tox l

`deps = <pkg>`
Packages to install

`commands = <cmd> {posargs}`
Commands to run, one per line

`extras = <name>`
Install optional dependencies

`pass_env = <VAR>`
Let env vars through to the env

`set_env = <VAR>=<val>`
Set env vars

`allowlist_externals = <cmd>`
Allow commands from outside the env

`base_python = python3.13`
Pick the interpreter

`skip_install = true`
Do not install your package

CONFIG FILE (cont.)

`dependency_groups = <group>`
Install PEP 735 groups (tox 4.22+)

SUBSTITUTION & FACTORS

`{posargs}`
Args after -- on the command line

`{posargs:<default>}`
Args, or a default if none given

`<factor>: <value>`
Line applies only if the env has the factor

`py3{12,13}-{a,b}`
Expand into every combination

RECIPES

Minimal tox.ini

```
[tox]
env_list = lint, py313

[testenv]
deps = pytest
commands = pytest {posargs}

[testenv:lint]
skip_install = true
deps = ruff
commands = ruff check .
```