Vitest Vite-native test runner

START HERE

`npx vitest`
Watch mode (run mode in CI)

`npx vitest run`
Run once and exit

`npx vitest <filter>`
Only files matching a path

`npx vitest -t "<name>"`
Only tests matching a name

`npx vitest run --coverage`
Run with coverage

`npx vitest -u`
Update snapshots

`npx vitest --ui`
Open the browser UI

`npx vitest related <file> --run`
Tests touching a file

Filter path, -t, --changed → **Run** workers, pool, env → **Report** --reporter, --coverage → **Watch** a / f / u / p / t keys

CONCEPTS

Plain vitest watches when run in a terminal and runs once when in CI or without a TTY. Use vitest run for a guaranteed single run.

CLI flags override the config file (vitest.config.ts or the test block in vite.config.ts); keep settings there and use flags for one-off runs.

Dotted flags such as --coverage.include or --browser.headless set nested config options, and any option can also be written --no-<flag> for booleans.

RUN TESTS

`npx vitest`
Start watch mode (or one run in CI)

`npx vitest run`
Run once, no watch

`npx vitest --run`
Same as run, for any command

`npx vitest <filter> <filter>`
Run files whose path contains a filter
Plain substring, not a glob or regexp. Several filters are OR-ed.

`npx vitest <file>:<line>`
Run the test at a line number
Single line only; no ranges.

`npx vitest -t "<pattern>"`
Run tests whose full name matches a regexp

`npx vitest run <file> -t "<pattern>"`
Combine file and name filters

`npx vitest related <file> --run`
Run tests that import the given files
Static imports only. Handy in lint-staged hooks.

`npx vitest run --changed`
Run tests affected by uncommitted changes

`npx vitest run --changed HEAD~1`
Tests affected since a commit or branch

`npx vitest run --exclude <glob>`
Skip additional files

`npx vitest run --passWithNoTests`
Do not fail when nothing matches

RUN TESTS (cont.)

`npx vitest -r <path> -c <file>`
Set project root and config file

`npx vitest bench`
Run benchmark files only

WATCH MODE KEYS

`a / Enter`
Rerun all tests

`f`
Rerun only failed tests

`r`
Rerun the current pattern

`u`
Update failing snapshots

`p`
Filter by file name

`t`
Filter by test name regexp

`w`
Filter by project name

`h`
Show the key help

`q`
Quit

OUTPUT

`npx vitest run --reporter=verbose`
One line per test

`npx vitest run --reporter=dot`
Compact dots

`npx vitest run --reporter=json --outputFile=<file>`
Write JSON results to a file

`npx vitest run --reporter=junit --outputFile=<file>`
JUnit XML for CI

`npx vitest run --reporter=default --reporter=github-actions`
Combine reporters
The flag is repeatable. Others: tap, tree, blob, minimal, hanging-process.

`npx vitest run --silent=passed-only`
Show console output of failures only

`npx vitest run --expandSnapshotDiff`
Full diff when a snapshot fails

`npx vitest list`
Print the collected tests without running

`npx vitest list --filesOnly --json`
List test files as JSON

OUTPUT (cont.)

`npx vitest --ui`
Open the browser dashboard
Needs the @vitest/ui package. Add --open=false to skip the browser.

COVERAGE

`npx vitest run --coverage`
Run with coverage report
Needs @vitest/coverage-v8 or @vitest/coverage-istanbul installed.

`npx vitest run --coverage.provider=istanbul`
Choose v8 or istanbul

`npx vitest run --coverage --coverage.reporter=html`
Pick report formats

`npx vitest run --coverage --coverage.include="src/**"`
Count uncovered files too
By default only files loaded by tests appear.

`npx vitest run --coverage --coverage.exclude=<glob>`
Leave files out of the report

`npx vitest run --coverage --coverage.thresholds.lines=80`
Fail below 80% lines

SNAPSHOTS AND FAILURES

`npx vitest run -u`
Rewrite all failing snapshots

`npx vitest run --bail 1`
Stop after the first failure

`npx vitest run --retry 2`
Retry failed tests twice

`npx vitest run --testTimeout 20000`
Per-test timeout in ms (default 5000)

`npx vitest run --sequence.shuffle.tests --sequence.seed <n>`
Shuffle tests with a fixed seed

SPEED AND CI

`npx vitest run --shard 1/3`
Run one third of the suite

`npx vitest run --reporter=blob --shard 1/3`
Save a blob report per shard

`npx vitest --mergeReports`
Merge blob reports from shards
Reads .vitest/blob by default; pass a directory otherwise.

`npx vitest run --pool=threads`
Use worker threads instead of forks

SPEED AND CI (cont.)

`npx vitest run --maxWorkers 2`
Limit parallel workers

`npx vitest run --no-file-parallelism`
Run files one after another

`npx vitest run --no-isolate`
Skip per-file isolation for speed
Faster, but tests may leak state into each other.

`npx vitest run --project <name>`
Run one workspace project
Repeatable; supports wildcards and ! negation.

`npx vitest --clearCache`
Delete Vitest caches and exit

ENVIRONMENT AND DEBUGGING

`npx vitest run --environment=jsdom`
Test in a DOM environment
jsdom or happy-dom must be installed. Default is node.

`npx vitest run --globals`
Use describe/it/expect without imports

`npx vitest run --browser=<name>`
Run tests in a real browser

`npx vitest run --typecheck`
Typecheck alongside tests

`npx vitest --inspectBrk --no-file-parallelism`
Debug with the Node inspector
Attach from Chrome or VS Code at 127.0.0.1:9229.

RECIPES

CI run with reports and coverage

```
npx vitest run --coverage \
  --reporter=default --reporter=junit \
  --outputFile.junit=reports/junit.xml
```

Sharded CI matrix job

```
npx vitest run --shard 2/4 --reporter=blob
# later, in a merge job:
npx vitest --mergeReports --reporter=default
```

Pre-commit: tests for staged files

```
git diff --name-only --cached \
  | xargs npx vitest related --run
```

Debug one test in the inspector

```
npx vitest run <file> -t "<name>" \
  --inspectBrk --no-file-parallelism
```