Gradle JVM build tool

START HERE

`./gradlew build`
Compile, test, assemble

`./gradlew tasks`
List available tasks

`./gradlew test`
Run the tests

`./gradlew dependencies`
Show dependency tree

`./gradlew run`
Run the application

`./gradlew build --scan`
Publish a Build Scan

`./gradlew clean`
Delete build output

`./gradlew --stop`
Stop the daemons

CONCEPTS

Use ./gradlew (the wrapper) instead of a global gradle: it pins the version the project was built with.

Build settings.gradle(.kts)
Project build.gradle(.kts)
Task build, test, ...
Build structure

Tasks run with their dependencies, and up-to-date tasks are skipped. Use --rerun-tasks to force everything.

Prefix a task with : for the root project, or use sub:task to target a subproject.

RUN TASKS

`./gradlew` *`<task>`*
Run a task and its dependencies

`./gradlew` *`<task1> <task2>`*
Run several tasks in order

`./gradlew build`
Assemble and run all checks

`./gradlew check`
Run all verification tasks

`./gradlew run`
Assemble and run the application

`./gradlew clean`
Delete the build directory contents

`./gradlew clean build`
Rebuild from scratch

`./gradlew :`*`<sub>`***`:`***`<task>`***
Run a task in one subproject

`./gradlew` *`<task>`* **`-x`** *`<name>`*
Skip a task, even if others need it
e.g. ./gradlew build -x test

`./gradlew` *`<task>`* **`-m`**
Dry run: show what would execute

`./gradlew` *`<task>`* **`--continue`**
Keep going after a failure

`./gradlew` *`<task>`* **`-t`**
Re-run when inputs change

`./gradlew` *`<task>`* **`--rerun-tasks`**
Ignore up-to-date checks

RUN TASKS (cont.)

`./gradlew` *`<task>`* **`--rerun`**
Force only that task to re-run

TESTING

`./gradlew test`
Run all tests

`./gradlew test --tests` *`<Class>`*
Run one test class

`./gradlew test --tests` *`<Class>.<method>`*
Run one test method

`./gradlew test --tests` *`'<pkg>*'`*
Run a package recursively
Starts with a capital letter = simple class name; otherwise fully qualified

`./gradlew test --tests` *`<a>`* **`--tests`** *`<b>`*
Combine several filters

`./gradlew test --test-dry-run`
Show which tests would be selected

`./gradlew test -i`
Show test output in the console

Test results land in build/test-results/<task> as JUnit XML, one file per class.

OPTIONS

`-i / --info`
Log at info level

`-s / --stacktrace`
Print stack traces for user errors

`-S / --full-stacktrace`
Print the full stack trace

`--scan`
Create a Build Scan

`--offline`
Do not use the network

`-U / --refresh-dependencies`
Refresh dependency state

`--parallel`
Build projects in parallel
Off by default

`--build-cache`
Enable the build cache
Off by default; --no-build-cache to disable

OPTIONS (cont.)

`--max-workers` *`<n>`*
Limit worker count

`--console=plain`
Plain output (no rich console)
Modes: auto, plain, colored, rich, verbose

`-p` *`<dir>`*
Use another project directory

`-D`*`<prop>`***`=`***`<value>`*
Set a JVM system property

`-P`*`<prop>`***`=`***`<value>`*
Set a project property

`-I` *`<script>`*
Add an init script

DAEMON

`./gradlew --status`
List running daemons

`./gradlew --stop`
Stop all daemons

`--no-daemon`
Run without the daemon

`--foreground`
Start the daemon in the foreground

The daemon stays alive between builds so later runs start faster. Stop it if memory or stale state is a problem.

INSPECT

`./gradlew tasks`
List main tasks

`./gradlew tasks --all`
Include tasks of all groups

`./gradlew tasks --group` *`<name>`*
List one task group

`./gradlew help --task` *`<name>`*
Show usage of one task

`./gradlew projects`
List subprojects as a tree

`./gradlew dependencies`
Dependency tree per configuration

`./gradlew dependencies --configuration` *`<name>`*
Tree for one configuration
e.g. runtimeClasspath

INSPECT (cont.)

`./gradlew dependencyInsight --dependency` *`<name>`* **`--configuration`** *`<cfg>`*
Explain why a dependency is there

`./gradlew buildEnvironment`
Show buildscript dependencies

`./gradlew -q` *`<task>`*
Quiet output

SETUP AND WRAPPER

`gradle init`
Create a new build interactively

`gradle init --type` *`<type>`*
Pick a project type
e.g. java-library

`gradle wrapper`
Generate gradlew and wrapper files

`gradle wrapper --gradle-version` *`<ver>`*
Pin or upgrade the wrapper version

`gradle wrapper --distribution-type all`
Use the all distribution (sources, docs)

`gradle wrapper --gradle-distribution-url` *`<url>`*
Download from your own mirror

`./gradlew --version`
Show the Gradle version in use

RECIPES

Rebuild and debug a failing build

```
./gradlew clean build --stacktrace --info
```

Why is this version chosen?

```
./gradlew dependencyInsight \
  --dependency guava \
  --configuration runtimeClasspath
```

Fast loop on one test

```
./gradlew test --tests UserServiceTest -t -i
```

Upgrade the wrapper

```
./gradlew wrapper --gradle-version 9
./gradlew --version
```