sbt Scala build tool

CONCEPTS

Start sbt once and stay in its shell: later commands skip the JVM startup and reuse compiled state.

build.sbt settings and tasks
↓ `reload`
sbt shell keeps state warm
↓ `compile / test`
target/ classes and reports

Tasks take a scope prefix: Test/compile compiles test sources, subproj/test runs one subproject.

RUN AND BUILD

`sbt`
Start the interactive shell

`sbt <command>`
Run one command and exit (batch mode)

`compile`
Compile main sources

`run <args>`
Run the main class in sbt's JVM

`runMain <class> <args>`
Run a specific main class

`clean`
Delete target directories

`Test/compile`
Compile test sources

`package`
Build the binary jar

`update`
Resolve dependencies

`exit`
Leave the shell (or Ctrl+D)

`help <command>`
Show help for a command

TESTING

`test`
Run all tests

`testOnly <Suite>`
Run named suites, * works

`testOnly <Suite> -- -z "<text>"`
Run tests matching a name

`testQuick`
Run new, failed or affected tests

WATCH MODE

`~compile`
Recompile on source change

`~test`
Re-run tests on change

`~testQuick`
Re-run only affected tests

`~run`
Restart the app on change

`Enter`
Stop a ~ watch and return to shell

PROJECTS

`projects`
List all subprojects

`project <id>`
Switch the current project

`<id>/test`
Run a task in one subproject

`<id>/compile`
Compile one subproject

`project /`
Switch back to the root project

`clean test`
Run tasks one after another

`; <a> ; <b>`
Run b only if a succeeds

BUILD DEFINITION

`reload`
Reload build files after editing

`set <key> := <value>`
Change a setting until reload

`show <key>`
Print a setting or task value

`inspect <key>`
Show scope, value and dependencies

`tasks`
List available tasks

CROSS BUILDING AND REPL

`console`
Scala REPL with project classpath

`consoleQuick`
REPL without compiling the project

CROSS BUILDING AND REPL (cont.)

`+test`
Run for every crossScalaVersions entry

`++<version> test`
Switch Scala version for one command

PUBLISH AND OPTIONS

`publishLocal`
Publish to the local Ivy repository

`publish`
Publish to the publishTo repository

`dependencyTree`
Print the dependency tree

`sbt -J-Xmx2G`
Pass a JVM option to sbt

BUILD.SBT BASICS

Minimal build.sbt

```
ThisBuild / scalaVersion := "3.3.4"

lazy val root = (project in file("."))
  .settings(name := "app")
```

Add a dependency

```
libraryDependencies += "org.scalatest" %% "scalatest" % "3.2.19" % Test
```

Operators

Operator	Meaning
`:=`	Set a value
`+=`	Append one element
`++=`	Append a collection
`%`	Group % artifact % version
`%%`	Add the Scala suffix to the artifact

RECIPES

Fast TDD loop on one suite

```
sbt
~testOnly com.example.UserSpec
```

Multi-module build, one module

```
sbt "api/clean" "api/test"
```

Cross-build and publish locally

```
sbt +test +publishLocal
```

CI run without color

```
sbt -Dsbt.ci=true -J-Xmx2G clean test
```