# Flutter Cross-platform UI toolkit

**START HERE**

`flutter` **`create`** *`<name>`*
New project

`flutter` **`pub add`** *`<pkg>`*
Add a package

`flutter` **`doctor`**
Check your setup

`flutter` **`test`**
Run tests

`flutter` **`devices`**
List targets

`flutter` **`analyze`**
Lint the code

`flutter` **`run`**
Run with hot reload

`flutter` **`build apk`**
Release build

**Edit** Dart code → `save` / `r` → **Hot reload** keeps state → `R` → **Hot restart** fresh state → `flutter build` → **Release** apk / ipa / web

## CONCEPTS

Press r in a flutter run session to hot reload; state is kept. R restarts and resets state.

flutter pub replaces dart pub and flutter test replaces dart test inside Flutter projects.

The SDK is a git checkout: channel and upgrade switch the whole toolchain, not just the CLI.

## PROJECT

`flutter` **`create`** *`<name>`*
Create a new app

`flutter` **`create --platforms=android,web .`**
Create into current dir for chosen platforms

`flutter` **`create --template=package`** *`<name>`*
Create a Dart package
*Other templates: plugin, module, skeleton.*

`flutter` **`create --org`** *`<com.example>`* *`<name>`*
Set the reverse-domain org id

`flutter` **`clean`**
Delete build/ and .dart_tool/

`flutter` **`gen-l10n`**
Generate localization classes

## RUN AND DEBUG

`flutter` **`run`**
Run the app on the selected device

`flutter` **`run -d`** *`<device-id>`*
Pick a device

`flutter` **`run -d all`**
Run on every connected device

`flutter` **`run -t`** *`<file.dart>`*
Use another entrypoint

`flutter` **`run --release`**
Run an optimized build

`flutter` **`run --profile`**
Profile performance on a real device

`flutter` **`run --flavor`** *`<name>`*
Build a flavor / scheme

`flutter` **`run --dart-define=`***`<K>`*`=`*`<V>`*
Pass a compile-time constant

`flutter` **`attach`**
Attach to an app already running

## RUN AND DEBUG (cont.)

`flutter` **`logs`**
Stream device logs

## IN A RUN SESSION

**`r`**
Hot reload

**`R`**
Hot restart

**`q`**
Quit and stop the app

**`h`**
List all session commands

**`d`**
Detach, leave the app running

**`p`**
Toggle the widget debug overlay

**`P`**
Toggle performance overlay

**`w`**
Dump the widget hierarchy

## DEVICES

`flutter` **`devices`**
List connected devices

`flutter` **`emulators`**
List available emulators

`flutter` **`emulators --launch`** *`<id>`*
Start an emulator

`flutter` **`config --enable-`***`<platform>`*`-desktop`**
Enable a desktop platform
*Platforms: linux, windows, macos; web uses --enable-web.*

## PACKAGES

`flutter` **`pub get`**
Fetch dependencies

`flutter` **`pub add`** *`<pkg>`*
Add a dependency

`flutter` **`pub add dev:`***`<pkg>`*
Add a dev dependency

`flutter` **`pub remove`** *`<pkg>`*
Remove a dependency

`flutter` **`pub upgrade`**
Upgrade within constraints

`flutter` **`pub upgrade --major-versions`**
Raise constraints to latest majors

`flutter` **`pub outdated`**
Show packages with newer versions

## PACKAGES (cont.)

`flutter` **`pub deps`**
Print the dependency tree

`flutter` **`pub run build_runner build`**
Run code generation

## TEST AND ANALYZE

`flutter` **`test`**
Run all tests in test/

`flutter` **`test`** *`<path/to/file_test.dart>`*
Run one test file

`flutter` **`test --plain-name`** *`<text>`*
Run tests by name substring

`flutter` **`test --name`** *`<regex>`*
Run tests matching a regex

`flutter` **`test --coverage`**
Write coverage/lcov.info

`flutter` **`test --update-goldens`**
Regenerate golden images

`flutter` **`test integration_test -d`** *`<id>`*
Run integration tests on a device

`flutter` **`analyze`**
Static analysis

`flutter` **`analyze --fatal-infos`**
Fail on infos too (CI)

**`dart format .`**
Format all Dart files

**`dart fix --apply`**
Apply automated lint fixes

## BUILD

`flutter` **`build apk`**
Android APK

`flutter` **`build apk --split-per-abi`**
One APK per CPU architecture

`flutter` **`build appbundle`**
Android App Bundle for Play

`flutter` **`build ios`**
iOS build (macOS only)

`flutter` **`build ipa`**
iOS archive for the App Store

`flutter` **`build web`**
Web build into build/web

`flutter` **`build linux`**
Linux desktop build

`flutter` **`build windows`**
Windows desktop build

## BUILD (cont.)

`flutter` **`build macos`**
macOS desktop build

`flutter` **`build`** *`<target>`* **`--obfuscate --split-debug-info=`***`<dir>`*
Obfuscate Dart symbols

`flutter` **`build`** *`<target>`* **`--build-name=`***`<x.y.z>`* **`--build-number=`***`<n>`*
Override version

## SDK AND SETUP

`flutter` **`doctor`**
Check toolchain and platforms

`flutter` **`doctor -v`**
Detailed doctor output

`flutter` **`doctor --android-licenses`**
Accept Android SDK licenses

`flutter` **`--version`**
Show SDK, engine, Dart versions

`flutter` **`upgrade`**
Upgrade the SDK

`flutter` **`channel`**
List channels

`flutter` **`channel`** *`<stable|beta|main>`*
Switch channel

`flutter` **`help`** *`<command>`*
Help for one command

## RECIPES

**New app, verify, run**

```
flutter create --org
com.example my_app
cd my_app
flutter analyze && flutter test
flutter run -d chrome
```

**Release APK for sideloading**

```
flutter clean
flutter pub get
flutter build apk --release --
split-per-abi
# output: build/app/outputs/
flutter-apk/
```

**Play Store bundle with a build number**

```
flutter build appbundle --
release \
  --build-name=1.2.0 --build-
number=42
# output: build/app/outputs/
bundle/release/
```

**Coverage report**

```
flutter test --coverage
genhtml coverage/lcov.info -o
coverage/html
# genhtml comes from lcov
```