# .NET CLI dotnet SDK commands

## CONCEPTS

Build, run, test and publish restore NuGet packages first, so a separate restore is rarely needed.

**Source** .cs + .csproj
↓ restore
**Packages** obj/project.assets.json
↓ build
**Binaries** bin/<config>/<tfm>
↓ publish
**Deploy folder** bin/.../publish

Arguments the app should get go after a literal --: dotnet run -- --help.

## CREATE

`dotnet new list`
List installed templates

`dotnet new console -o <name>`
New console app in a folder

`dotnet new classlib -o <name>`
New class library

`dotnet new webapi -o <name>`
New ASP.NET Core web API

`dotnet new xunit -o <name>`
New xUnit test project

`dotnet new sln`
New solution file

## BUILD AND RUN

`dotnet build`
Compile the project or solution

`dotnet build -c Release`
Build in Release configuration

`dotnet run`
Build and run the project

`dotnet run --project <path>`
Run a project from elsewhere

`dotnet run -- <args>`
Pass arguments to the app

`dotnet watch`
Rerun or hot reload on change

## TEST

`dotnet test`
Build and run all tests

## TEST (cont.)

`dotnet test --filter <expr>`
Run only matching tests

`dotnet test --filter "Name~<text>"`
Match by test name

`dotnet test -l "console;verbosity=detailed"`
Show each test result

`dotnet test --collect "XPlat Code Coverage"`
Collect coverage with Coverlet

## PACKAGES AND REFERENCES

`dotnet add package <id>`
Add a NuGet package

`dotnet add package <id> -v <version>`
Add a specific version

`dotnet list package`
List referenced packages

`dotnet list package --outdated`
Show newer versions

## SOLUTIONS

`dotnet sln add <csproj>`
Add a project to the solution

## PUBLISH

`dotnet publish -c Release`
Publish for deployment

`dotnet publish -r <rid> --self-contained`
Bundle the runtime

## TOOLS AND FORMAT

`dotnet tool install <id>`
Install a local (repo) tool

`dotnet format`
Apply .editorconfig style fixes

`dotnet format --verify-no-changes`
CI check, fails if changes needed

## SDK AND WORKLOADS

`dotnet --info`
SDK, runtime and OS details

`dotnet <command> -h`
Help for any command