Crystal Compiled, Ruby-like language

CONCEPTS

Crystal is compiled (via LLVM) with Ruby-like syntax and static types that are mostly inferred. There is no interpreter: run compiles to a cached temp binary each time.

Write src/app.cr
↓ `shards install`
Deps lib/ + shard.lock
↓ `crystal build`
Build bin/app
↓ `crystal spec`
Test spec/*_spec.cr

Plain build is fast but unoptimized (-O0). Benchmark and ship with --release; it is much slower to compile.

RUN AND BUILD

`crystal run <file.cr>`
Compile and run a file

`crystal run <file.cr> -- <args>`
Pass arguments to the program

`crystal build <file.cr>`
Build a binary in the current dir

`crystal build --release <file.cr>`
Optimized build (-O3, single module)

`crystal build -o <path> <file.cr>`
Choose the output path

`crystal build --static <file.cr>`
Link statically

EVAL AND PLAYGROUND

`crystal eval '<code>'`
Compile and run a code string

`crystal version`
Print Crystal, LLVM and target triple

PROJECTS

`crystal init app <name>`
Scaffold an application

`crystal init lib <name>`
Scaffold a library

init creates src/, spec/ and shard.yml. Commit shard.lock for applications, leave it out for libraries.

SPECS

`crystal spec`
Run all specs in spec/

`crystal spec <file>`
Run one spec file

`crystal spec <file>:<line>`
Run the example at a line

`crystal spec -e '<name>'`
Run examples matching a name

`crystal spec --fail-fast`
Stop at the first failure

`crystal spec --order random`
Randomize example order

FORMAT AND TOOLS

`crystal tool format`
Format all files in place

`crystal tool format <path>`
Format a file or folder

`crystal tool format --check`
Fail if anything is unformatted (CI)

`crystal docs`
Generate API docs into ./docs

SHARDS

`shards install`
Install deps into lib/ per the lock

`shards update`
Re-resolve all deps, rewrite shard.lock

`shards build`
Install deps, build into bin/

LANGUAGE BASICS

Nil safety

```
# x is String?
x = ENV["HOME"]?
if x
  puts x.size
end
x.try &.size
x.not_nil!
```

`require "./file" / require "json"`
Load a relative file or stdlib module

Type? means Type | Nil. The compiler rejects calls on a possible nil; narrow with if, try, or not_nil! (raises at runtime).