Nim Compiled, Python-like language

START HERE

`nim c -r <file.nim>`
Compile and run

`nim r <file.nim>`
Run via nimcache

`nim c -d:release <file.nim>`
Optimized build

`nim c -o:<out> <file.nim>`
Name the binary

`nim js <file.nim>`
Compile to JavaScript

`nimble init`
Scaffold a package

`nimble build`
Build the package

`nimble test`
Run tests/t*.nim

CONCEPTS

nim c builds a debug binary with checks on. Benchmark and ship with -d:release (or -d:danger).

Nim source app.nim
↓ `nim c`
Generated C in nimcache
↓ `cc + ld`
Binary app
↓ `nim js`
JavaScript app.js

Nim output defaults to the source name beside the file; nim r keeps the binary in nimcache.

Nim compiles each backend through generated code: C by default, C++ with cpp, JS with js.

COMPILE AND RUN

`nim c <file.nim>`
Compile with the C backend

`nim c -r <file.nim> <args>`
Compile, then run with args

`nim r <file.nim> <args>`
Compile to nimcache and run

`nim c -d:release <file.nim>`
Optimized release build

`nim c -o:<file> <file.nim>`
Set the output file name

`nim c --outdir:<dir> <file.nim>`
Set the output directory

COMPILE AND RUN (cont.)

`nim cpp <file.nim>`
Compile via C++

`nim js <file.nim>`
Compile to JavaScript

`nim c -d:danger <file.nim>`
Optimize, all runtime checks off

`nim c --opt:size <file.nim>`
Optimize for size

`nim c --app:lib <file.nim>`
Build a shared library

`nim c --app:staticlib <file.nim>`
Build a static library

CHECKS AND FLAGS

`nim check <file.nim>`
Check syntax and types only

`nim c -d:<symbol> <file.nim>`
Define a symbol

`nim c -d:<symbol>:<val> <file.nim>`
Define a symbol with a value

`nim c --threads:on <file.nim>`
Enable threads

`nim c --mm:<orc|arc|refc> <file.nim>`
Pick memory management

`nim c --path:<dir> <file.nim>`
Add a module search path

CHECKS AND FLAGS (cont.)

`nim c --hints:off <file.nim>`
Silence hints

C TOOLCHAIN AND CROSS

`nim c --cc:<gcc|clang> <file.nim>`
Choose the C compiler

`nim c --passC:<flag> <file.nim>`
Pass a flag to the C compiler

`nim c --passL:<flag> <file.nim>`
Pass a flag to the linker

`nim c --cpu:<cpu> --os:<os> <file.nim>`
Cross compile

`nim c -d:mingw <file.nim>`
Cross compile to Windows

CONFIGURATION

nim.cfg
Per-project switches, one per line

config.nims
NimScript project config

config.nims

```
switch("d", "release")
switch("mm", "orc")
switch("path", "$projectDir/
src")
task build, "build app":
  exec "nim c -o:bin/app src/
app.nim"
```

CONFIGURATION (cont.)

Command-line switches win over config files; later configs override earlier ones.

NIMBLE PACKAGES

`nimble init`
Start a new package (wizard)

`nimble build`
Build the package binaries

`nimble run <bin> <args>`
Build and run a binary

`nimble test`
Run tests/t*.nim

`nimble install`
Install the package in this dir

`nimble install <pkg>`
Install a package

`nimble install <pkg>@<ver>`
Install a specific version

`nimble install --depsOnly`
Install only dependencies

`nimble uninstall <pkg>`
Remove a package

`nimble search <term>`
Find packages by name or tag

`nimble list -i`
List installed packages

`nimble refresh`
Update the package list

`nimble check`
Validate the package

`nimble tasks`
List custom tasks

NIMBLE PACKAGES (cont.)

`nimble <task>`
Run a task from the .nimble file

`nimble dump`
Show package metadata

`nimble path <pkg>`
Print a package's path

LOCAL WORKFLOW

`nimble setup`
Create nimble.paths for the project

`nimble lock`
Pin versions in nimble.lock

`nimble develop <pkg>`
Clone a package for hacking

Commit nimble.lock; keep nimble.paths and nimble.develop out of git, they are machine-local.

PACKAGE FILE

mypkg.nimble

```
version     = "0.1.0"
author      = "Jane Doe"
description = "Small tool"
license     = "MIT"
srcDir      = "src"
bin         = @["mytool"]

requires "nim ⩾ 2.0.0"
requires "jester ⩾ 0.5.0"
```

Custom task and hook

```
task hello, "Say hi":
  echo "Hello"

before hello:
  echo "before"
```

PACKAGE FILE (cont.)

`requires "<pkg> ~= <ver>"`
Semver-compatible dependency

LANGUAGE BASICS

Variables

```
let x = 1          # immutable
var y = 2          # mutable
const z = 3        # compile time
```

Procs

```
proc add(a, b: int): int =
  a + b

echo add(1, 2)
```

Loops and collections

```
for i in 0 ..< 3: echo i
var s = @[1, 2, 3]
s.add 4
for x in s: echo x
```

Types

```
type Point = object
  x, y: int
let p = Point(x: 1, y: 2)
```

RECIPES

Start a new binary

```
mkdir hello && cd hello
nimble init
nimble build
nimble run
```

Fast iteration

```
nim r --hints:off app.nim
nim check app.nim
```

Ship a release binary

```
nim c -d:release --opt:size \
  -o:bin/app src/app.nim
```

Web build

```
nim js -d:release -o:app.js
app.nim
```