Dagger Programmable CI pipelines

Your code module + SDK → `dagger call` → **CLI** GraphQL API → `session` → **Engine** BuildKit-based → `runs` → **Containers** cached steps

CONCEPTS

Functions run in containers on the Dagger engine, so a pipeline behaves the same on your laptop and in CI.

Chain functions on the command line: each returned object exposes its own functions, such as container, directory and file.

Results are cached by content. A step reruns only when its inputs change.

MODULES

`dagger init --sdk=`*`<go|python|typescript>`*
Create a module in this directory

`dagger init --name` *`<name>`*
Name the module

`dagger develop`
Regenerate SDK code and bindings

`dagger install` *`<module>`*
Add a module as dependency

MODULES (cont.)

`dagger install -n` *`<name>`* *`<module>`*
Install under another name

`dagger update` *`<module>`*
Update a dependency

`dagger uninstall` *`<module>`*
Remove a dependency

`dagger toolchain install` *`<module>`*
Add a toolchain to the module

CALL FUNCTIONS

`dagger functions`
List the module's functions

`dagger functions` *`<fn>`*
List a function's sub-functions

`dagger call` *`<fn>`*
Run a function

`dagger call` *`<fn>`* **`--help`**
Show a function's arguments

`dagger call` *`<fn>`* **`--`***`<arg>`* *`<value>`*
Pass an argument

`dagger call` *`<fn>`* *`<next-fn>`*
Chain functions

CALL FUNCTIONS (cont.)

`dagger call` *`<fn>`* **`--source=.`**
Pass a local directory

`dagger call` *`<fn>`* **`stdout`**
Print a container's output

`dagger call` *`<fn>`* **`-o`** *`<path>`*
Save the result to a file or directory

`dagger call` *`<fn>`* **`--json`**
Print result as JSON

`dagger call` *`<fn>`* **`terminal`**
Open a shell in the result container

`dagger call -m` *`<ref>`* *`<fn>`*
Call a module by path or git ref

SHELL AND API

`dagger`
Open the interactive Dagger shell

`dagger -c "`*`<script>`***`"`**
Run a Dagger shell script

`dagger core container from` *`<image>`*
Call the core API directly

`dagger core --help`
List core API objects

SHELL AND API (cont.)

`dagger run` *`<command>`*
Run any program inside a Dagger session

Shell, call or run?

Command	Use for
`dagger call`	functions in a module
`dagger (shell)`	exploring, ad-hoc pipelines
`dagger run`	your own SDK script

SECRETS

`dagger call` *`<fn>`* **`--token=env://`***`<VAR>`*
Secret from an env variable

`dagger call` *`<fn>`* **`--token=file://`***`<path>`*
Secret from a file

Use the Secret type for tokens and keys, never a plain string argument, so values stay out of logs and traces.

OUTPUT AND DEBUG

`dagger call -i` *`<fn>`*
Shell into a failing exec

`dagger call -v` *`<fn>`*
More detail (-vv, -vvv for more)

OUTPUT AND DEBUG (cont.)

`dagger call -s` *`<fn>`*
Hide progress entirely

`dagger call --progress=plain` *`<fn>`*
Plain log output for CI

RECIPES

Create and run a Go module

```
dagger init --sdk=go --name=ci
dagger functions
dagger call container-echo --string-arg hi stdout
```

Test and build in CI

```
dagger call --progress=plain test --source=.
dagger call build --source=. export --path=./bin/app
```

Build a container and publish

```
dagger call build --source=. \
  publish --address=ghcr.io/<org>/<app>:latest
```

Pass a token from the environment

```
export GH_TOKEN=<token>
dagger call deploy --token=env://GH_TOKEN
```

HELP

`dagger --help`
List all commands and flags