Gulp Streaming build tasks

START HERE

`npm install --save-dev gulp`
Add gulp to a project

`npm install --global gulp-cli`
Get the gulp command

`gulp`
Run the default task

`gulp <task>`
Run one task

`gulp --tasks`
List tasks

`gulp.src(<glob>)`
Read files

`.pipe(<plugin>())`
Transform them

`gulp.dest(<dir>)`
Write the result

src() glob in, files out → pipe → **Plugins** transform in memory → pipe → **dest()** write to disk

CONCEPTS

A task is an async function in gulpfile.js; export it to make it runnable from the command line.

Files travel as Vinyl objects (path plus contents); plugins take and return them.

A task must signal completion: return a stream, promise or child process, take a done callback, or be async. Otherwise gulp reports it never finished.

INSTALL

`npm install --save-dev gulp`
Add gulp to the project

`npm install --global gulp-cli`
Install the gulp command globally

`npx gulp <task>`
Run the local CLI without a global install

`gulp --version`
Print CLI and local gulp versions

`gulp --help`
Show all CLI flags

RUN

`gulp`
Run the default task

`gulp <task>`
Run one exported task

`gulp <task1> <task2>`
Run several tasks in parallel
Parallel is the CLI default; add --series to keep the given order.

`gulp --series <task1> <task2>`
Run CLI tasks one after another

`gulp --continue <task>`
Keep going after a task fails

`gulp -f <path> <task>`
Use another gulpfile and set cwd to it

`gulp --cwd <dir> <task>`
Look for the gulpfile from another directory

`gulp --preload <module> <task>`
Load a module before the gulpfile

`gulp --silent <task>`
Suppress gulp logging

RUN (cont.)

`gulp -LLLL <task>`
Most verbose logging (-L least)

`gulp --no-color <task>`
Disable coloured output

INSPECT TASKS

`gulp --tasks`
Print the task tree (also -T)

`gulp --tasks-simple`
Plain list of task names

`gulp --tasks-json`
Task tree as JSON

`gulp --tasks --depth <n>`
Limit task tree depth

`gulp --tasks --sort-tasks`
Sort top-level tasks

`gulp --tasks --compact-tasks`
Show only top tasks and children

DEFINE TASKS

`exports.<name> = <fn>`
Make a task runnable from the CLI

`exports.default = <fn>`
Task run by plain gulp

`gulp.task('<name>', <fn>)`
Register a task by string name
Works, but exporting functions is the recommended style.

`gulp.series(<a>, <b>)`
Run tasks in order

`gulp.parallel(<a>, <b>)`
Run tasks concurrently

`async function <name>() { }`
Task using async/await

`function <name>(cb) { cb() }`
Task using a done callback

`cb(err)`
Fail a callback task

`<fn>.displayName = '<name>'`
Name an anonymous function task

`<fn>.description = '<text>'`
Text shown by --tasks

`gulp.series(<a>, gulp.parallel(<b>, <c>))`
Nest compositions freely

`gulp.tree()`
Task tree object, as in --tasks-json

FILES AND STREAMS

`gulp.src('<glob>')`
Read files matching a glob

`gulp.src(['<glob>', '!<glob>'])`
Include and exclude globs

`gulp.dest('<dir>')`
Write files to a directory

`.pipe(<transform>)`
Pass the stream through a plugin

`gulp.src('<glob>', { base: '<dir>' })`
Keep folder structure from a base

`gulp.src('<glob>', { encoding: false })`
Read as binary (images, fonts)

`gulp.src('<glob>', { buffer: false })`
Stream contents for big files

`gulp.src('<glob>', { allowEmpty: true })`
No error when a glob matches nothing

`gulp.src('<glob>', { ignore: '<glob>' })`
Exclude globs via an option

`gulp.src('<glob>', { dot: true })`
Match dotfiles too

`gulp.src('<glob>', { sourcemaps: true })`
Load and track sourcemaps

`gulp.dest('<dir>', { sourcemaps: '.' })`
Write external sourcemap files

`gulp.src('<glob>', { since: gulp.lastRun('<task>') })`
Only files changed since the last run

Glob patterns

Pattern	Matches
`*`	Any name within one directory
`**`	Any depth of directories
`!<glob>`	Exclude matches
`{a,b}`	Either alternative

WATCH

`gulp.watch('<glob>', <task>)`
Run a task when files change

`gulp.watch('<glob>', gulp.series(<a>, <b>))`
Watch and run a composition

`gulp.watch('<glob>').on('change', <fn>)`
React to a single event

WATCH (cont.)

`gulp.watch('<glob>', { ignoreInitial: false }, <task>)`
Also run once at startup

`gulp.watch('<glob>', { events: ['add'] }, <task>)`
Limit to chosen events

`gulp.watch('<glob>', { delay: 500 }, <task>)`
Debounce changes (ms)

`gulp.watch('<glob>', { queue: false }, <task>)`
Allow overlapping runs

`gulp.watch('<glob>', { usePolling: true }, <task>)`
Poll for changes (network drives)

RECIPES

Minimal gulpfile.js

```
const { src, dest, series, parallel } = require('gulp');

function copy() {
  return src('src/**/*').pipe(dest('dist'));
}

exports.build = series(copy);
exports.default = exports.build;
```

Clean then build

```
const { rm } = require('node:fs/promises');

async function clean() {
  await rm('dist', { recursive: true, force: true });
}

exports.build = series(clean, parallel(styles, scripts));
```

Dev loop: build once, then watch

```
function watchFiles() {
  watch('src/**/*.js', scripts);
  watch('src/**/*.css', styles);
}

exports.dev = series(exports.build, watchFiles);
```

Transform with a plugin and sourcemaps

```
// npm i -D gulp-uglify
const uglify = require('gulp-uglify');

function scripts() {
  return src('src/**/*.js', { sourcemaps: true })
    .pipe(uglify())
    .pipe(dest('dist', { sourcemaps: '.' }));
}
```