Lighthouse Web page quality audits

CONCEPTS

Default run is mobile emulation with simulated slow 4G and a slowed CPU, so scores are lower than what a fast laptop feels. Use --preset=desktop for desktop.

Gather load page in Chrome, collect artifacts
↓ artifacts
Audit run audits on artifacts
↓ scores
Categories performance, a11y, SEO ...
↓ reporters
Report html / json / csv

Scores vary between runs. Close other tabs, run several times and compare medians before trusting a small change.

Needs Node 22+ and an installed Chrome or Chromium. Point CHROME_PATH at a specific binary.

RUNNING

`lighthouse <url>`
Audit a URL, write an HTML report to the cwd

`lighthouse <url> --view`
Open the HTML report when done

`lighthouse --url-file=<file> --output-path=<dir>`
Audit every URL listed in a file

`lighthouse <url> --verbose`
Show debug logging

`lighthouse <url> --quiet`
Hide progress, debug logs and errors

OUTPUT

`--output=<html|json|csv>`
Pick the report format

`--output=json --output=html`
Write several formats in one run

`--output-path=<file|dir|stdout>`
Where to write the report

OUTPUT (cont.)

`--view`
Open the HTML report in a browser

`--save-assets`
Save trace and devtools log to disk

JSON output goes to stdout by default; HTML and CSV go to a file named from the URL and date.

CATEGORIES & AUDITS

`--only-categories=<a,b>`
Run only these categories

`--only-audits <id> ...`
Run only the named audits

`--skip-audits <id> ...`
Run everything except these audits

`--list-all-audits`
Print all audit ids and exit

`--preset=<name>`
Built-in config: perf, desktop, experimental

`--config-path=<file>`
Use your own config (custom audits, categories)

`--blocked-url-patterns <pattern> ...`
Block matching network requests

`--extra-headers <json|file>`
Send extra HTTP headers (cookie, auth)

`--disable-storage-reset`
Keep cache and storage from before the run

EMULATION & THROTTLING

`--preset=desktop`
Desktop viewport, desktop metrics scoring

`--form-factor=<mobile|desktop>`
Set scoring form factor only

`--throttling-method=<method>`
Throttling: simulate, devtools, provided

EMULATION & THROTTLING (cont.)

`--throttling.cpuSlowdownMultiplier=<n>`
Set CPU slowdown

`--screenEmulation.disabled`
Turn off screen emulation

CHROME

`--chrome-flags="<flags>"`
Pass flags to the launched Chrome

`--chrome-flags="--headless"`
Run without a visible window

`--chrome-flags="--no-sandbox"`
Needed in many containers and CI

`--port <n>`
Debugging port; 0 picks a random one

`CHROME_PATH=<path> lighthouse <url>`
Use a specific Chrome binary

GATHER & AUDIT SEPARATELY

`lighthouse <url> -G`
Gather only, save artifacts to ./latest-run

`lighthouse <url> -A`
Audit saved artifacts without a browser

For CI budgets and history across commits, use Lighthouse CI (GoogleChrome/lighthouse-ci) instead of scripting the CLI.

RECIPES

Score as JSON, extract the performance score

```
lighthouse <url> --output=json --
output-path=stdout --quiet --
chrome-flags="--headless" \
  | jq
'.categories.performance.score'
```

HTML and JSON side by side

```
lighthouse <url> --output=html --
output=json --output-path=./
reports/home
# writes reports/home.report.html
and reports/home.report.json
```