clang-format C/C++ code formatter

CONCEPTS

Put a .clang-format file in the repo root and use --style=file: every tool and editor then agrees on one style.

Source file or stdin
↓ `find config`
.clang-format nearest parent dir
↓ `apply`
Formatted code stdout or in place

Without a .clang-format file, --style=file falls back to LLVM style; change that with --fallback-style.

RUN

`clang-format` *<file>*
Print formatted code to stdout

`clang-format -i` *<file>*`...`
Rewrite files in place

`clang-format --style=`*<style>* *<file>*
Pick a preset or file

`clang-format --version`
Show the version

`clang-format -i src/*.cpp include/*.h`
Format many files

`clang-format --lines=`*<start>*`:`*<end>* **`-i`** *<file>*
Format only a line range

`clang-format --verbose -i` *<file>*`...`
List files as they are processed

<cmd> **`| clang-format --assume-filename=`***<name>*
Format stdin as that file type

CHECK (CI)

`clang-format --dry-run` *<file>*
Report violations, change nothing

`clang-format -n -Werror` *<file>*
Exit non-zero if unformatted

`git ls-files '*.c' '*.h' | xargs clang-format -n -Werror`
Check all tracked sources

STYLES & CONFIG

`--style=LLVM`
Preset: LLVM (default)

`--style=Google`
Preset: Google

`--style=Chromium / Mozilla / WebKit`
Other browser presets

`--style=file`
Use nearest .clang-format

`--style=file:`*<path>*
Use a specific config file

`--style="{BasedOnStyle: Google, IndentWidth: 4}"`
Inline settings

`--fallback-style=`*<style>*
Style when no config is found

`--fallback-style=none`
Skip formatting without a config

`clang-format -style=`*<style>* **`--dump-config > .clang-format`**
Write a full config file

`clang-format --dump-config`
Show config for the cwd

`clang-format --dump-config --assume-filename=`*<f>*
Show config used for a file

.CLANG-FORMAT KEYS

`BasedOnStyle: Google`
Start from a preset

`BasedOnStyle: InheritParentConfig`
Inherit parent directory's file

`IndentWidth: 4`
Spaces per indent level

`ColumnLimit: 100`
Maximum line width (0 = none)

`UseTab: Never`
Tabs: Never, ForIndentation, Always

`BreakBeforeBraces: Allman`
Brace style: Attach, Linux, Allman

`PointerAlignment: Left`
Align * and & left, right or middle

`SortIncludes: CaseSensitive`
Sort #include lines (or Never)

.CLANG-FORMAT KEYS (cont.)

`IncludeBlocks: Regroup`
Merge, Preserve or Regroup blocks

`IndentCaseLabels: true`
Indent case inside switch

`Language: Cpp`
Limit a section to one language

GIT INTEGRATION

`git clang-format`
Format staged changes

`git clang-format` *<commit>*
Format lines changed since a commit

`git clang-format main`
Format all changes on a branch

`git clang-format --diff`
Show the diff, apply nothing

IN CODE & EDITORS

`// clang-format off`
Stop formatting from here

`// clang-format on`
Resume formatting

`Alt+Shift+F`
VS Code: format document

`clang-format.py`
Vim: source and map a key

CLion picks up a .clang-format file in the project root automatically.

Use `// clang-format off` sparingly, for hand-aligned tables or macros; fix the style first.

RECIPES

Start a project config

```
clang-format -style=Google --
dump-config > .clang-format
# edit IndentWidth,
ColumnLimit ...
clang-format -i src/*.cpp
```

Minimal .clang-format

```
# .clang-format
BasedOnStyle: Google
IndentWidth: 4
ColumnLimit: 100
PointerAlignment: Left
```