

ROOT-5998: CMake File Globbing

The ROOT Team

ROOT

Data Analysis Framework

<https://root.cern>



How to list source files in CMakeLists.txt?

- ▶ Use file globbing with `file(GLOB *.cxx)`
 - Shorter CMakeLists.txt, add/remove files only on disk
 - Must re-run CMake every time a file is added or removed
 - Breaks dependencies when adding/removing files, may pickup extras
 - Discouraged by CMake developers themselves and in CMake docs
- ▶ List all source files explicitly
 - Longer CMakeLists.txt, have to list all files explicitly
 - CMake tracks dependencies properly, no need to re-run
 - Ensure that only the files you want will be in the build

```
file(GLOB <variable>
     [LIST_DIRECTORIES true|false] [RELATIVE <path>]
     [<globbing-expressions>...])
file(GLOB_RECURSE <variable> [FOLLOW_SYMLINKS]
     [LIST_DIRECTORIES true|false] [RELATIVE <path>]
     [<globbing-expressions>...])
```

Generate a list of files that match the `<globbing-expressions>` and store it into the `<variable>`. Globbing expressions are similar to regular expressions, but much simpler. If `RELATIVE` flag is specified, the results will be returned as relative paths to the given path. The results will be ordered lexicographically.

By default `GLOB` lists directories - directories are omitted in result if `LIST_DIRECTORIES` is set to false.

Note: We do not recommend using `GLOB` to collect a list of source files from your source tree. If no `CMakeLists.txt` file changes when a source is added or removed then the generated build system cannot know when to ask CMake to regenerate.



- ▶ <https://cmake.org/cmake/help/latest/command/file.html>
- ▶ <https://stackoverflow.com/questions/1027247/is-it-better-to-specify-source-files-with-glob-or-each-file-individually-in-cmak>