

WG 14 N 2555

Request for definition of the term “multi-threaded program”

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It recently came to my attention that the addition of multi-threading support in C11 has implications for signal handling as well. Looking into this more closely, I came to the conclusion that the two might even be mutually exclusive. The most recent draft of the upcoming revision of the standard that I’m aware of, N2478, states in 7.14.1.1:

“Use of this function in a multi-threaded program results in undefined behavior.”

Unfortunately, however, the term “multi-threaded program” isn’t defined anywhere in the standard as far as I’m aware. Assuming a reasonable definition, I can broadly think of two options:

1. A program that consists of more than one thread of execution is considered a multi-threaded program throughout its lifetime.
2. A program becomes a multi-threaded program as soon as it starts a thread of execution other than the main thread.

The difference between these two options is crucial, because in the first case multi-threading and signal handling are mutually exclusive in their entirety, while in the second case there is at least some leeway to handle signals in multi-threaded programs. Therefore, it might be wise to clarify the standard’s wording on this matter. Of course, if in your opinion the current standard is actually already clearly worded, I’d be happy to be shown that my interpretation was incorrect.