

Document Number: p2437r1

Date: 2022-01-13

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Audience: Core Working Group

# Support for #warning

## Summary of Changes

R1

- Reworded 15.8p1 slightly

R0

- Initial proposal

## Introduction and Rationale

Almost all major C++ compilers support the `#warning` preprocessing directive to generate a diagnostic message from the preprocessor without stopping translation, as `#error` does, which can be useful for code authors who want to warn consumers of the code about non-fatal concerns. Consider a hypothetical library that does not yet support multithreading. The library author may wish to warn users about the lack of thread support but may not want to stop translation as the library can be safely consumed by an application that is also not multithreaded.

WG14 considered a similar proposal as part of WG14 N2686 at our Sept 2021 meeting and adopted the feature into C23 (straw poll results were: 17 in favor, 0 oppose, 1 abstain). The WG21 proposal is functionally identical to the WG14 proposal, with the only difference being due to existing variance in specification around how `#error` causes translation to stop. Adopting this proposal into C++ will be compatible with the same feature in C, and implementers appreciate keeping the preprocessor functionality the same between these two languages whenever possible.

## Proposed Wording

The wording proposed is a diff from the working draft of WG21 N4892. **Green** text is new text, while **red** text is deleted text.

Modify the 15.1 [cpp.pre] grammar productions:

control-line:

```
# include pp-tokens new-line
pp-import
# define identifier replacement-list new-line
# define identifier lparen identifier-listopt replacement-list new-line
# define identifier lparen . . . replacement-list new-line
# define identifier lparen identifier-list , . . . replacement-list new-line
# undef identifier new-line
```

```
# line pp-tokens new-line
# error pp-tokensopt new-line
# warning pp-tokensopt new-line
# pragma pp-tokensopt new-line
# new-line
```

Modify the 15.8 [cpp.error] heading:

15.8 ~~Error directive~~Diagnostic directives

Modify 15.8p1:

1 A preprocessing directive of ~~the~~either of the following forms

```
# error pp-tokensopt new-line
# warning pp-tokensopt new-line
```

causes the implementation to produce a diagnostic message that includes the specified sequence of preprocessing tokens, ~~and~~; the # ~~error directive~~ renders the program ill-formed.

## Acknowledgements

I would like to recognize the following people for their help in this work: Jens Maurer, Javier Múgica, and Richard Smith.

## References

[WG14 N2686]

#warning. Javier Múgica. <http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2686.pdf>