

Require `span` & `basic_string_view` to be Trivially Copyable

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Introduction

Given its definition, it is strongly implied that `span` & `basic_string_view` are trivially copyable, but that is not yet a requirement.

Motivation and Scope

Both `span` and `basic_string_view` have:

- Defaulted copy constructors
- Defaulted copy assignment operators
- Defaulted destructors
- Exposition-only types consisting of a raw pointer and a `size_t`.
- Many member functions that are `constexpr`, and in C++17 would have required trivial destruction (for `basic_string_view` as `span` was added in C++20).

Because of the above, it is strongly implied that these are trivially copyable types. However, that is not a stated requirement.

Furthermore, both libstdc++ and libc++ implement them as trivially copyable types: <https://godbolt.org/z/nWY3dv>.

I ran this by LWG and there was support for it with no objections.

Impact on the Standard

This is purely additive to the standard.

Technical Specifications

These changes are relative to C++20:

In [\[span.overview\]](#), add:

[span<ElementType, Extent> is a trivially copyable type.](#)

`ElementType` is required to be a complete object type that is not an abstract class type.

In [\[string.view.template.general\]](#), add:

The complexity of `basic_string_view` member functions is $O(1)$ unless otherwise specified.

[basic_string_view<charT, traits> is a trivially copyable type.](#)

Acknowledgements

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References

C++20: Programming Languages – C++, International Standard ISO/IEC 14882, Sixth edition 2020-10

Stack Overflow: [Is std::string_view trivially copyable?](#)