



# std Containers

All **const** member functions can be called concurrently by different threads on the same container.



# Avoiding ABI Breaks



Sutter's Mill

Herb Sutter on software development

## My little New Year's Week project (and maybe one for you?)

Herb Sutter 2025-01-02 7 Minutes

*[Updates: Clarified that an intrusive discriminator would be far beyond what most people mean by "C++ ABI break." Mentioned unique addresses and common initial sequences. Added "unknown" state for passing to opaque functions.]*

Here is my little New Year's Week project: Trying to write a small library to enable compiler support for automatic raw `union` member access checking.

### The problem, and what's needed

During 2024, I started thinking: **What would it take to make C/C++ `union` accesses type-checked?** Obviously, the ideal is to change naked `union` types to something safe.(\*) But because it will take time and effort for the world to adopt any solution that requires making source code changes, I wondered how much of the safety we might be able to get, at what overhead cost, just by recompiling existing code in a way that instruments ordinary `union` objects?

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I'm an author and speaker, and a programming language nerd whose focus is on enabling our program code to be both clean and fast. I've been writing about programming since 1993, usually about C++ or about concurrency and parallelism. I'm the designer