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C++ static code analysis

Unique rules to find Bugs, Vulnerabilities, Security Hotspots, and Code Smells in your C++ code

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Tags

Search by name...

"memset" should not be used to delete sensitive data

Vulnerability

POSIX functions should not be called with arguments that trigger buffer overflows

Vulnerability

XML parsers should not be vulnerable to XXE attacks

Vulnerability

Function-like macros should not be invoked without all of their arguments

Bug

The address of an automatic object should not be assigned to another object that may persist after the first object has ceased to exist

Bug

Assigning to an optional should directly target the optional

Bug

Result of the standard remove algorithms should not be ignored

Bug

"std::scoped_lock" should be created with constructor arguments

Bug

Objects should not be sliced

Bug

Immediately dangling references should not be created

Bug

"pthread_mutex_t" should be unlocked in the reverse order they were locked

Bug

"pthread_mutex_t" should be properly initialized and destroyed

Bug

"pthread_mutex_t" should not be consecutively locked or unlocked twice

"#include" paths should be portable

Analyze your code

Code SmellMajor?pitfall

The way an `#include` directive finds an actual file is implementation-defined, and in practice, it slightly differs in different systems.

Therefore, a good practice is to identify the files to include in the most straightforward way possible to reduce the risk of inconsistent behaviors.

This rule raises an issue when:

- The case of the file in the `#include` directive does not match the case of the file on the disk (the inclusion would not work on a case-sensitive OS),
- The file name in the `#include` directive contains trailing spaces (they would be ignored on Windows but considered on Unix).

Noncompliant Code Example

```
#include "Foo.h" // Noncompliant if the actual file name is "  
#include "bar.h " // Noncompliant, trailing space
```

Available In:

sonarlint | sonarcloud | sonarqube Developer Edition

 Bug
"std::move" and "std::forward" should not be confused  Bug
A call to "wait()" on a "std::condition_variable" should have a condition  Bug
A pointer to a virtual base class shall only be cast to a pointer to a derived class by means of dynamic_cast  Bug
Functions with "noreturn" attribute should not return  Bug
RAII objects should not be temporary  Bug
"memcmp" should only be called with pointers to trivially copyable types with no padding  Bug
"memcpy", "memmove", and "memset" should only be called with pointers to trivially copyable types  Bug
"std::auto_ptr" should not be used  Bug
Destructors should be "noexcept"  Bug