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C++ static code analysis

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

All rules 578

 Vulnerability 13

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"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

Deprecated attributes should include explanations

Analyze your code

 Code Smell  Major  obsolete bad-practice

The deprecated attribute can be applied with or without explanations, but marking something deprecated without including advice as to why it's deprecated or on what to use instead will lead maintainers to waste time trying to figure those things out - every single time the warning is encountered.

Noncompliant Code Example

```
[[deprecated]] // Noncompliant
void foo1();

__attribute__((deprecated)) // Noncompliant
void foo2();

__declspec(deprecated) // Noncompliant
void foo3();
```

Compliant Solution

```
[[deprecated("use 'bar' instead")]]
void foo1();

__attribute__((deprecated("use 'bar' instead")))
void foo2();

__declspec(deprecated("use 'bar' instead"))
void foo3();
```

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