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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 | Bug 111 | Security Hotspot 18 | Code Smell 436 | Quick Fix 68

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

Redundant pointer operator sequences should be removed

Analyze your code

Code Smell | Blocker | suspicious

By contract, chaining the 'Address of' operator `&` with the 'Indirection' operator `*` results in a return to the initial value. Thus, such combinations are confusing at best, and bugs at worst.

Noncompliant Code Example

```
int *ptr = ...;
int *result1 = &(*ptr); //Noncompliant
int *result2 = &*ptr; //Noncompliant

int value = 4;
int result3 = *(&value); //Noncompliant
int result4 = *&value; //Noncompliant
```

Compliant Solution

```
int *ptr = ...;
int *result1 = ptr;
int *result2 = ptr;

int value = 4;
int result3 = value;
int result4 = value;
```

Exceptions

No issue is raised when the `*` or `&` operators are overloaded or when both operators are not located in the same piece of code (one being generated by a macro expansion and the other one located in the main source code for instance).

Available In:

sonarlint | sonarcloud | sonarqube Developer Edition

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initialized and destroyed

Bug

"pthread_mutex_t" should not be consecutively locked or unlocked twice

Bug

"std::move" and "std::forward" should not be confused

Bug

A call to "wait()" on a "std::condition_variable" should have a