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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

"this" should not be compared with null

Analyze your code

 Code Smell  Major 

According to the C++ standard, this can never be null, so comparisons of the two are pointless at best. At worst, because of compiler optimizations, such comparisons could lead to null pointer dereferences or obscure, difficult-to-diagnose errors in production.

This rule raises an issue when this is compared to nullptr or 0 or anything #defined as nullptr or 0, such as NULL in most environments.

### Noncompliant Code Example

```
class MyClass {
    string name;

    string GetName() {
        if (this != 0) { // Noncompliant
            return name;
        }
        return 0;
    }
}
```

### Compliant Solution

```
class MyClass {
    string name;

    string GetName() {
        return name;
    }
}
```

Available In:

sonarlint  | sonarcloud  | sonarqube  Developer Edition

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