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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 initialized and destroyed

Bug

"pthread_mutex_t" should not be consecutively locked or unlocked twice

Assembly language should be encapsulated and isolated

Analyze your code

Code Smell Major misra-c++2008 misra-c2004

Ensuring that assembly language code is encapsulated and isolated aids portability. Where assembly language instructions are needed, they shall be encapsulated and isolated in either assembler functions or C++ functions.

Noncompliant Code Example

```
void fn ( void )
{
    DoSomething ( );
    asm ( "NOP" ); // Noncompliant, asm mixed with C/C++ statement
    DoSomething ( );
}
```

Compliant Solution

```
void Delay ( void )
{
    asm ( "NOP" ); // Compliant, asm not mixed with C/C++ statement
}

void fn ( void )
{
    DoSomething ( );
    Delay ( ); // Compliant, Assembler is encapsulated
    DoSomething ( );
}
```

See

- MISRA C 2004, 2.1 - Assembly language shall be encapsulated and isolated.
- MISRA C++ 2008, 7-4-3 - Assembly language shall be encapsulated and isolated.

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