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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 311	🔒 Vulnerability 13	🐛 Bug 74	🛡 Security Hotspot 18	⊙ Code Smell 206	⚡ Quick Fix 14

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

"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

🐛 Bug

Functions with "noreturn" attribute should not return

🐛 Bug

"memcmp" should only be called with pointers to trivially copyable types with no padding

🐛 Bug

#include directives in a file should only be preceded by other preprocessor directives or comments

Analyze your code

⊙ Code Smell   ⚠ Major ?   🏷 misra-c++2008 misra-c2004 confusing misra-c2012

To aid code readability, all the `#include` directives in a particular code file should be grouped together near the top of the file. The only items which may precede an `#include` in a file are other preprocessor directives or comments.

Additionally, an `#include` may appear within an `extern "C"` block, this can be used for instance to include a C file from a C++ file.

Noncompliant Code Example

```
#include <h1.h> /* Compliant */
int32_t i;
#include <f2.h> /* Noncompliant */
```

Compliant Solution

```
#include <h1.h>
#include <f2.h>
extern "C" {
#include <f3.h>
}

int32_t i;
```

See

- MISRA C:2004, 19.1 - #include statements in a file should only be preceded by other preprocessor directives or comments.
- MISRA C++:2008, 16-0-1 - #include directives in a file shall only be preceded by other preprocessor directives or comments.
- MISRA C:2012, 20.1 - #include directives should only be preceded by preprocessor directives or comments

Available In:

sonarlint 😐 | sonarcloud ⚙ | sonarqube ⟫ Developer Edition

Stack allocated memory and non-owned memory should not be freed

🐞 Bug

Closed resources should not be accessed

🐞 Bug

Dynamically allocated memory should be released

🐞 Bug

Freed memory should not be used