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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**

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Tags

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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

"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

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

Bug

### Functions should not be declared at block scope

Analyze your code

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

A function declared at block scope will refer to a member of the enclosing namespace, and so the declaration should be explicitly placed at the namespace level.

Additionally, where a declaration statement could either declare a function or an object, the compiler will choose to declare the function. To avoid potential developer confusion over the meaning of a declaration, functions should not be declared at block scope.

#### Noncompliant Code Example

```
class A {  
};  
  
void fun() {  
    void nestedFun(); // Noncompliant; declares a function in  
  
    A a(); // Noncompliant; declares a function at block s  
}
```

#### See

- MISRA C:2004, 8.6 - Functions shall be declared at file scope
- MISRA C++:2008, 3-1-2 - Functions shall not be declared at block scope

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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