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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

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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

Argument of "printf" should be a format string

Analyze your code

Code Smell Critical bad-practice

It is a security vulnerability to call `printf` with a unique string argument which is not a string literal. Indeed, if this argument comes from a user input, this user can :

- make the program crash, by executing code equivalent to:
`printf("%s%s%s%s%s%s%s")`
- view the stack or a memory at any location, by executing code equivalent to:
`printf("%08x %08x %08x %08x %08x\n")`

Noncompliant Code Example

```
void f(char* userInput) {  
    printf(userInput); // Noncompliant  
}
```

Compliant Solution

```
void f(char* userInput) {  
    printf("%s", userInput); // Compliant  
}
```

See

- [Owasp: format string attack](#)

Available In:

sonarlint | sonarcloud | sonarqube Developer Edition

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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