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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

All branches in a conditional structure should not have exactly the same implementation

Bug Major

Having all branches in a `switch` or `if` chain with the same implementation is an error. Either a copy-paste error was made and something different should be executed, or there shouldn't be a `switch/if` chain at all.

Noncompliant Code Example

```
if (b == 0) {  // Noncompliant
  doOneMoreThing();
} else {
  doOneMoreThing();
}

int b = a > 12 ? 4 : 4;  // Noncompliant

switch (i) {  // Noncompliant
  case 1:
    doSomething();
    break;
  case 2:
    doSomething();
    break;
  case 3:
    doSomething();
    break;
  default:
    doSomething();
}
```

Exceptions

This rule does not apply to `if` chains without `else`-s, or to `switch`-es without `default` clauses.

```
if(b == 0) {    //no issue, this could have been done on purp
  doSomething();
} else if(b == 1) {
  doSomething();
}
```

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