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C static code analysis

Unique rules to find Bugs, Vulnerabilities, Security Hotspots, and Code Smells in your C code

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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

Redundant pointer operator sequences should be removed

Analyze your code

Code Smell | Blocker | suspicious

By contract, chaining the 'Address of' operator `&` with the 'Indirection' operator `*` results in a return to the initial value. Thus, such combinations are confusing at best, and bugs at worst.

Noncompliant Code Example

```
int *ptr = ...;
int *result1 = &(*ptr); //Noncompliant
int *result2 = &*ptr; //Noncompliant

int value = 4;
int result3 = *(&value); //Noncompliant
int result4 = *&value; //Noncompliant
```

Compliant Solution

```
int *ptr = ...;
int *result1 = ptr;
int *result2 = ptr;

int value = 4;
int result3 = value;
int result4 = value;
```

Exceptions

No issue is raised when the `*` or `&` operators are overloaded or when both operators are not located in the same piece of code (one being generated by a macro expansion and the other one located in the main source code for instance).

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