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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

Unary minus should not be applied to an unsigned expression

Analyze your code

Bug | Major | based-on-misra

Applying the unary minus operator to an unsigned variable or expression will always yield another unsigned expression. More plainly, in some cases the operation itself is meaningless, and in some other cases the result will be unexpected. In all cases it is bad practice. Therefore the unary minus operator should not be applied to unsigned variables or expressions.

Noncompliant Code Example

```
uint8_t a = -1U;
int32_t b = -a; // Noncompliant; b is assigned -255
uint32_t c = 1U;
int64_t d = -c; // Noncompliant; d is assigned MAX_UINT
```

Exceptions

This rule ignores `-1U` because it is commonly used as shorthand for `MAX_UINT`.

See

- MISRA C:2004, 12.9 - The unary minus operator shall not be applied to an expression whose underlying type is unsigned.
- MISRA C++:2008, 5-3-2 - The unary minus operator shall not be applied to an expression whose underlying type is unsigned.
- MISRA C:2012, 10.1 - Operands shall not be of an inappropriate essential type

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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