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C static code analysis

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

"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

"for" loop counters should not have essentially floating type

Analyze your code

Bug   Minor   based-on-misra cert

When using a floating-point `for` loop counter, an accumulation of rounding errors may result in a mismatch between the expected and actual number of iterations.

Even if floating-point loop counters appears to behave correctly on one implementation, it may give a different number of iterations on another implementation.

Noncompliant Code Example

```
for (float counter = 0.0f; counter < 1.0f; counter += 0.001f)
  ...
}
```

Compliant Solution

```
for (int counter = 0; counter < 1000; ++counter) {
  ...
}
```

See

- MISRA C:2004, 13.4 - The controlling expression of a for statement shall not contain any objects of floating type.
- MISRA C++:2008, 6-5-1 - A *for* loop shall contain a single *loop-counter* which shall not have floating type.
- MISRA C:2012, 14.1 - A *loop counter* shall not have essentially *floating type*.
- CERT, FLP30-C. - Do not use floating-point variables as loop counters

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