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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

All code should be reachable

Analyze your code

Bug | Major | cwe based-on-misra cert unused

Some statements (`return`, `break`, `continue`, `goto`, `co_return`) and `throw` expressions move control flow out of the current code block. Furthermore, some function do not return control flow (e.g. `abort()`, `std::terminate()`, functions with the `[[noreturn]]` attribute).

Any unlabeled statements that come after such a jump or function call are unreachable, and either this dead code should be removed, or the logic should be corrected.

Noncompliant Code Example

```
int fun(int a) {
  int i = 10;
  return i + a;       // Noncompliant
  i++;              // dead code
}
```

Compliant Solution

```
int fun(int a) {
  int i = 10;
  return i + a;
}
```

See

- MISRA C:2004, 14.1 - There shall be no unreachable code
- MISRA C++:2008, 0-1-1 - A project shall not contain unreachable code
- MISRA C:2012, 2.1 - A project shall not contain unreachable code
- MITRE, CWE-561 - Dead Code
- CERT, MSC56-J. - Detect and remove superfluous code and values
- CERT, MSC12-C. - Detect and remove code that has no effect or is never executed

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