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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

"restrict" should not be used

Analyze your code

Code Smell | Critical | based-on-misra cert

The `restrict` type qualifier is a guarantee by the programmer that there are no other pointers with access to the referenced object, and that the object does not overlap with any other object in memory. Its use may allow the compiler to generate more efficient byte code.

However, this is a tricky language feature to use correctly, and there is significant risk of unexpected program behavior if `restrict` is misused. Therefore, `restrict` should not be used.

Noncompliant Code Example

```
void user_copy (
  void * restrict p,  // Noncompliant parameter
  void * restrict q,  // Noncompliant parameter
  size_t n
) {
  // ...
}
```

See

- MISRA C:2012, 8.14 - The restrict type qualifier shall not be used
- CERT, EXP43-C. - Avoid undefined behavior when using restrict-qualified pointers

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