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# Objective C static code analysis


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

All rules 315

 Vulnerability 10

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"memset" should not be used to delete sensitive data

 Vulnerability

POSIX functions should not be called with arguments that trigger buffer overflows

 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

"memcpy" should only be called with pointers to trivially copyable types with no padding

 Bug

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

"#undef" should be used with caution

Analyze your code

 Code Smell  Critical  based-on-misra brain-overload

Code that contains many macros becomes hard to understand. This is even worse when the set of defined macros is not stable, and you have to know at each point what macros are defined. Therefore, `#undef` can decrease the readability of macros.

However, well-disciplined use of `#undef` can also improve readability, for instance when defining a macro with a limited scope: The macro is `#defined`, used a couple of times to reduce code duplication, then immediately `#undefed`.

This rule raises an issue when a `#undef` undefines a macro that was defined in another file. It will also raise an issue for an `#undef` directive that tries to undefine a non-existing macro.

### Noncompliant Code Example

```
#ifndef MY_HDR
#define MY_HDR
#endif
...
#undef MY_HDR    /* Noncompliant */
```

### Compliant Solution

```
#define LEVEL(i) int const i = #i
LEVEL(Debug);
LEVEL(Warning);
LEVEL(Error);
#undef LEVEL
```

### See

- MISRA C:2004, 19.6 - `#undef` shall not be used.
- MISRA C++:2008, 16-0-3 - `#undef` shall not be used.
- MISRA C:2012, 20.5 - `#undef` should not be used

Available In:

sonarcloud  | sonarqube  Developer Edition

<div>Freed memory should not be used</div> <div> Bug</div>
<div>Memory locations should not be released more than once</div> <div> Bug</div>
<div>Memory access should be explicitly bounded to prevent buffer overflows</div> <div> Bug</div>
<div>Printf-style format strings should not lead to unexpected behavior at runtime</div> <div> Bug</div>
<div>Recursion should not be infinite</div> <div> Bug</div>
<div>Resources should be closed</div> <div> Bug</div>
<div>Hard-coded credentials are security-sensitive</div> <div> Security Hotspot</div>
<div>"goto" should jump to labels declared later in the same function</div> <div> Code Smell</div>
<div>Only standard forms of the "defined" directive should be used</div> <div> Code Smell</div>
<div>Switch labels should not be nested inside non-switch blocks</div> <div> Code Smell</div>