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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

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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

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

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

Enums should be consistent with the bit fields they initialize

Analyze your code

Bug Major

Bit fields can only have integral or enumeration type. If it is quite straightforward to check if an integral type can initialize a bit field, it is however trickier with an enum type: the bit field has to be wide enough to store all the possible values of the enum.

In addition to this, the signedness of the enum should be consistent with the signedness of the bit field:

- an unsigned bit field can not be initialized with a signed enum type
- a signed bit field uses one bit to store the sign and this needs to be taken into account while comparing the size of the enum type with the size of the bit field.

Noncompliant Code Example

```
enum Color {
  BLUE = 16
} myColor;

enum Fruit {
  ORANGE = 1,
  APPLE = 2
} myFruit;

struct BitStructForColor {
    unsigned int b : 2;
};

struct BitStructForFruit {
    signed int b : 2;
};

void f(BitStructForColor  &bColorStruct, BitStructForFruit  &
  bColorStruct.b = myColor; // Noncompliant, myColor is too w
  bFruitStruct.b = myFruit; // Noncompliant, one bit of the b
}
```

Compliant Solution

Freed memory should not be used

Bug

Memory locations should not be released more than once

Bug

Memory access should be explicitly bounded to prevent buffer overflows

Bug

Printf-style format strings should not lead to unexpected behavior at runtime

Bug

Recursion should not be infinite

Bug

Resources should be closed

Bug

Hard-coded credentials are security-sensitive

Security Hotspot

"goto" should jump to labels declared later in the same function

Code Smell

Only standard forms of the "defined" directive should be used

Code Smell

Switch labels should not be nested inside non-switch blocks

Code Smell

```
enum Color {
  BLUE = 16
} myColor;

enum Fruit {
  ORANGE = 1,
  APPLE = 2
} myFruit;

struct BitStructForColor {
    unsigned int b : 5;
};

struct BitStructForFruit {
    signed int b : 3;
};

void f(BitStructForColor  &bColorStruct, BitStructForFruit  &
  bColorStruct.b = myColor;
  bFruitStruct.b = myFruit;
}
```


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