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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

The value of a complex expression should only be cast to a type that is narrower and of the same signedness as the underlying type of the expression

Analyze your code

Code Smell   Major   based-on-misra

If a cast is to be used on any complex expression, the type of cast that may be applied is severely restricted. As explained in MISRA C 2004, section 6.10, conversions on complex expressions are often a source of confusion and it is therefore wise to be cautious. In order to comply with these rules, it may be necessary to use a temporary variable and introduce an extra statement.

Noncompliant Code Example

```
... (float32_t)(f64a + f64b)
... (float64_t)(f32a + f32b) // Noncompliant
... (float64_t)f32a
... (float64_t)(s32a / s32b) // Noncompliant
... (float64_t)(s32a > s32b) // Noncompliant
... (float64_t)s32a / (float32_t)s32b
... (uint32_t)(u16a + u16b) // Noncompliant
... (uint32_t)u16a + u16b
... (uint32_t)u16a + (uint32_t)u16b
... (int16_t)(s32a - 12345)
... (uint8_t)(u16a * u16b)
... (uint16_t)(u8a * u8b) // Noncompliant
... (int16_t)(s32a * s32b)
... (int32_t)(s16a * s16b) // Noncompliant
... (uint16_t)(f64a + f64b) // Noncompliant
... (float32_t)(u16a + u16b) // Noncompliant
... (float64_t)foo1(u16a + u16b)
... (int32_t)buf16a[u16a + u16b]
```

See

- MISRA C:2004, 10.3 - The value of a complex expression of integer type may only be cast to a type that is narrower and of the same signedness as the underlying type of the expression.
- MISRA C:2004, 10.4 - The value of a complex expression of floating type may only be cast to a narrower floating type.

See Also

- MISRA C:2004, section 6.10

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