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C static code analysis

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

All rules **311**	🔒 Vulnerability **13**	🐞 Bug **74**	🛡 Security Hotspot **18**	⬡ Code Smell **206**	⚡ Quick Fix **14**

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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

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

"atof", "atoi" and "atol" from <stdlib.h> should not be used

Analyze your code

🐞 Bug   ⊘ Critical ?   🏷 based-on-misra cert

`<stdlib.h>`'s `atof`, `atoi`, and `atol` functions, which convert strings to numbers, have undefined behavior when the strings cannot be converted, and should therefore be avoided.

Noncompliant Code Example

```
int converter (const char * numstr) {
  return atoi(numstr); // Noncompliant
}
```

Compliant Solution

```
int converter (const char * numstr) {
  return strtol(numstr, NULL, 10);
}
```

See

- MISRA C:2004, 20.10 - The library functions atof, atoi and atol from library <stdlib.h> shall not be used.
- MISRA C++:2008, 18-0-2 - The library functions atof, atoi and atol from library <cstdlib> shall not be used.
- MISRA C:2012, 21.7 - The atof, atoi, atol and atoll functions of <stdlib.h> shall not be used
- CERT, ERR34-C. - Detect errors when converting a string to a number

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