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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 578

 Vulnerability 13

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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

Assigning to an optional should directly target the optional

 Bug

Result of the standard remove algorithms should not be ignored

 Bug

"std::scoped_lock" should be created with constructor arguments

 Bug

Objects should not be sliced

 Bug

Immediately dangling references should not be created

 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

Pointers should not be cast to integral types

Analyze your code

 Bug  Critical  based-on-misra cert

The size of integer required to hold a memory address is implementation-dependent. Therefore, casting a pointer (i.e. a memory address) to any integral data type may result in data loss because the integral type is too small to hold the full address value.

When treating a memory address as integer type is absolutely required, you should be sure to use a large enough type to hold all the data.

Noncompliant Code Example

```
int *p;
int addr = ( int ) &p;
```

See

- MISRA C:2004, 11.3 - A cast should not be performed between a pointer type and an integral type.
- MISRA C++:2008, 5-2-9 - A cast should not convert a pointer type to an integral type.
- MISRA C:2012, 11.4 - A conversion should not be performed between a pointer to object and an integer type
- [CERT, INT36-C](#). - Converting a pointer to integer or integer to pointer

Available In:

 |  |  Developer Edition

 Bug
"std::move" and "std::forward" should not be confused  Bug
A call to "wait()" on a "std::condition_variable" should have a condition  Bug
A pointer to a virtual base class shall only be cast to a pointer to a derived class by means of dynamic_cast  Bug
Functions with "noreturn" attribute should not return  Bug
RAII objects should not be temporary  Bug
"memcmp" should only be called with pointers to trivially copyable types with no padding  Bug
"memcpy", "memmove", and "memset" should only be called with pointers to trivially copyable types  Bug
"std::auto_ptr" should not be used  Bug
Destructors should be "noexcept"  Bug