Secrets
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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

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

Hard-coded credentials are security-sensitive

Analyze your code

Security Hotspot   Blocker   cwe cert sans-top25 owasp

Because it is easy to extract strings from an application source code or binary, credentials should not be hard-coded. This is particularly true for applications that are distributed or that are open-source.

In the past, it has led to the following vulnerabilities:

- CVE-2019-13466
- CVE-2018-15389

Credentials should be stored outside of the code in a configuration file, a database, or a management service for secrets.

This rule looks for hard-coded credentials in variable names that match any of the patterns from the provided list.

Ask Yourself Whether

- Credentials allow access to a sensitive component like a database, a file storage, an API or a service.
- Credentials are used in production environments.
- Application re-distribution is required before updating the credentials.

There is a risk if you answered yes to any of those questions.

Recommended Secure Coding Practices

- Store the credentials in a configuration file that is not pushed to the code repository.
- Store the credentials in a database.
- Use your cloud provider's service for managing secrets.
- If a password has been disclosed through the source code: change it.

Sensitive Code Example

```
dbi_conn conn = dbi_conn_new("mysql");
string password = "secret"; // Sensitive
dbi_conn_set_option(conn, "password", password.c_str());
```

Compliant Solution

```
dbi_conn conn = dbi_conn_new("mysql");
string password = getDatabasePassword(); // Compliant
dbi_conn_set_option(conn, "password", password.c_str()); // C
```

See

- OWASP Top 10 2021 Category A7 - Identification and Authentication Failures
- OWASP Top 10 2017 Category A2 - Broken Authentication
- MITRE, CWE-798 - Use of Hard-coded Credentials
- MITRE, CWE-259 - Use of Hard-coded Password
- CERT, MSC03-J. - Never hard code sensitive information

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

- SANS Top 25 - Porous Defenses
- Derived from FindSecBugs rule Hard Coded Password

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