SEI CERT C++ Coding Standard

The C++ rules and recommendations in this wiki are a work in progress and reflect the current thinking of the secure coding community. Because this is a development website, many pages are incomplete or contain errors. As rules and recommendations mature, they are published in report or book form as official releases. These releases are issued as dictated by the needs and interests of the secure software development community.

The CERT C++ Coding Standard does not currently expose any recommendations; all C++ recommendations have been removed (moved to The Void section) due to quality concerns pending further review and development.

Create a sign-in account if you want to comment on existing content. If you wish to be more involved and directly edit content on the site, you still need an account, but you'll also need to request edit privileges.

Front Matter

Page: Usage
Page: Tool Selection and Validation
Page: System Qualities
Page: Scope
Page: Rules Versus Recommendations
Page: Relation to the CERT C Coding Standard
Page: Introduction
Page: How this Coding Standard Is Organized
Page: Government Regulations
Page: Development Process
Page: Conformance Testing
Page: Automatically Generated Code
Page: Automated Detection
Page: Audience
Page: Acknowledgments

Rules

Page: Rule 01. Declarations and Initialization (DCL)
Page: Rule 02. Expressions (EXP)
Page: Rule 03. Integers (INT)
Page: Rule 04. Containers (CTR)
Page: Rule 05. Characters and Strings (STR)
Page: Rule 06. Memory Management (MEM)
Page: Rule 07. Input Output (FIO)
Page: Rule 08. Exceptions and Error Handling (ERR)
Page: Rule 09. Object Oriented Programming (OOP)
Page: Rule 10. Concurrency (CON)
Page: Rule 49. Miscellaneous (MSC)
Secure C++

Coding Books

and Downloads

The CERT C++ Coding Standard, 2016 Edition provides rules to help programmers ensure that their C++ code reduces security flaws by following secure coding best practices. It is downloadable as a PDF. (errata)

The CERT C Coding Standard refers and relies on the CERT C Coding Standard. The CERT C Coding Standard, 2016 Edition provides rules to help programmers ensure that their code complies with the new C11 standard and earlier standards, including C99. It is downloadable as a PDF. (errata)

Secure Coding in C and C++

identifies the root causes of today’s most widespread software vulnerabilities, shows how they can be exploited, reviews the potential consequences, and presents secure alternatives.
Rules vs. Recommendations

This coding standard consists of rules and recommendations, collectively referred to as guidelines. Rules are meant to provide normative requirements for code, whereas recommendations are meant to provide guidance that, when followed, should improve the safety, reliability, and security of software systems. Learn more about the differences.

Linking to Our Pages

Link to guidelines using the Tiny Link under ToolsLink to this Page... (This URL will not change if the name of the guideline changes.)

Information for Editors

- To eliminate a section from the lists above, label it section and void.
- To have a section listed as a recommendation, label it section and recommendation.
- To have a section listed as a rule, label it section and rule.