

# 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

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

## Rules

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

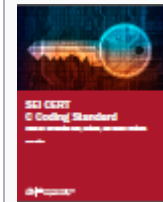
## Back Matter

### 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 references 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.

### Contact Us

[Contact us](#) if you

- have questions about this wiki
- have recommendations for standards in development
- want to request privileges to participate in standards development

- [AA. Bibliography](#)
- [BB. Definitions](#)
- [CC. Analyzers](#)
- [DD. Related Guidelines](#)
- [EE. Risk Assessments](#)

#### Thank You!

We acknowledge the contributions of the following [folks](#), and we look forward to seeing your name here as well.

#### Rules vs. Recomendations

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*.