

B.3 — Introduction to C++17

1 ALEX **1** JANUARY 23, 2020

What is C++17?

In September of 2017, the ISO (International Organization for Standardization) approved a new version of C++, called C++17. C++17 contains a fair amount of new content

New improvements in C++17

For your interest, here's a list of the major improvements that C++17 adds. Note that this list is not comprehensive, but rather intended to highlight some of the key improvements of interest.

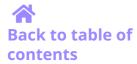
- _has_include preprocessor identifier to check if optional header files are available (no tutorial yet)
- if statements that resolve at compile time (no tutorial yet)
- Initializers in if statements and switch statements (no tutorial yet)
- inline variables (6.9 -- Sharing global constants across multiple files (using inline

variables))

- Fold expressions (no tutorial yet)
- Nested namespaces can now be defined as namespace X::Y 6.2 -- User-defined namespaces and the scope resolution operator)
- Removal of std::auto_ptr and some other deprecated types
- static_assert no longer requires a diagnostic text message parameter (7.17 -- Assert and static_assert)
- std::any (no tutorial yet)
- std::byte (no tutorial yet)
- std::filesystem (no tutorial yet)
- std::optional (no tutorial yet)
- std::shared_ptr can now manage C-style arrays (but std::make_shared can't create them yet) (4.7 -- std::shared_ptr)
- std::size (10.2 -- Arrays (Part II))
- std::string_view (10.7 -- An introduction to std::string_view)
- Structured binding declarations (11.5 -- Returning values by value, reference, and address, but could use a full lesson)
- Template deduction for constructors (no tutorial yet)
- Trigraphs have been removed
- typename can now be used (instead of class) in a template template parameter
- UTF-8 (u8) character literals (no tutorial yet)



B.4 Introduction to C++20





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