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## What's New in C++23

(2 days)

### Course overview

This course takes a detailed look at what's new in C++23, both in terms of language techniques and library enhancements. We'll explain the purpose of the new features, explore the nuances, and see how to apply them properly. We also take a sneak preview of what to expect in C++26.

The course is designed to cover 2 full days. The course can also be scheduled as a 1-day event if you want to select a subset of topics.

### What you'll learn

- Core language changes
- Reflection and metadata enhancements
- Additional features for containers, algorithms and views
- Concurrency and coroutines updates
- Miscellaneous library enhancements
- Glimpse into C++26

### Prerequisites

- Proficient C++ programmer
- Familiarity with C++ up to version 20

### Course details

- **Setting the Scene:** Overview of C++23 goals and non-goals; Evolution from C++20; Compiler support (GCC, Clang, MSVC)
- **Core Language Changes:** Changes to the type system (explicit, auto, typeid); Enhancements with this pointer; Static functors; Bitfield enhancements; Preprocessor enhancements; Exception management
- **Reflection and Metadata Enhancements:** Constexpr enhancements; Type traits and utilities
- **Additional Features for Containers, Algorithms and Views:** New containers and capabilities; New algorithms; Ranges improvements
- **Concurrency and Coroutines Updates:** std::atomic\_ref additions; std::latch, std::barrier improvements; Generators and coroutines
- **Miscellaneous Library Enhancements:** Formatting; Printing; Date, time, and calendar; std::optional enhancements; Smart pointer interop; Modularized C++ STL
- **Glimpse into C++26:** Contracts; Reflection; Concurrency and parallelism; Additional bits and pieces